Before the Hearings Panel
At Porirua City Council

Under	Schedule 1 of the Resource Management Act 1991
In the matter of	the Proposed Porirua District Plan
Between	**Various**
	Submitters
And	**Porirua City Council**
	Respondent

Statement of Economic Evidence of Adam Thompson on behalf of Silverwood Corporation Limited

Date: 20 June 2022

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1. INTRODUCTION

1. My full name is Adam Jeffrey Thompson. For the past 20 years I have provided consulting services in the fields of urban economics, property market analysis and property development advisory. For the past 16 years I have owned and managed two consulting firms that have provided services in these fields. I am presently the director of Urban Economics Limited.

2. I have a Bachelor of Resource Studies from Lincoln University (1998), a Master of Planning from Auckland University (2000) and a Dissertation in Urban Economics from the London School of Economics (2014). I have studied urban economics at Auckland University and environmental economics at Lincoln University.

3. I have undertaken over 900 economic and property market assessments for a range of private and public sector clients.

4. I have read the Environment Court's Code of Conduct and agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this statement of evidence are within my area of expertise.

5. The data, information, facts and assumptions I have considered in forming my opinions are set out in the part of the evidence in which I express my opinions. I have not omitted to consider material facts known to me that might alter or detract from the opinions I have expressed.

2. CODE OF CONDUCT

6. I have read the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2014. I have complied with the Code of Conduct in preparing my evidence and will continue to comply with it while giving oral evidence before the Environment Court. My qualifications as an expert are set out above. Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

3. SCOPE OF EVIDENCE

7. This evidence provides a response to a report entitled “Porirua City Future Urban Zone Economic Overview” which concludes that the site should not be rezoned to Future Urban Zone.

3.1 Reports Reviewed

8. The following reports have been reviewed in the preparation of this report:

- Porirua City Future Urban Zone Economic Overview
- Section 42A Report-Future Urban Zone
- Porirua Commercially Feasible Residential Capacity Update, January 2020 (the "PE2020 report")
- Porirua Feasible Residential Capacity Assessment, December 2021 (the "PE2021 report")
- PE Housing Demand Report
- WCC HBA
- Porirua City Council Medium Density Residential Development Feasibility Assessment. August 2019, The Property Group
- Statement of Evidence of Philip Mark Osborne on Behalf of The New Plymouth District Council, 5 July 2021.

4. KEY POINTS

9. Porirua has seen growth of total of 256 dwellings were built each year, on average, over the March 2020-2022 period.

10. Council's expectation is that this growth will increase to 500 dwellings per annum.

11. Council have undertaken feasibility modelling and have concluded that there will be 10,957 dwellings that are built in brown field areas, through infill and redevelopment, and 5,554 dwellings that will be built in new greenfield areas.

12. Of the 10,957 dwellings that are built in the brownfield areas, 6,833 (62%) are located with the commercial zones, which main includes the city centre.

13. Council expects only a few hundred apartments to be built in Porirua over the next 30 years. Council expects the majority of dwellings that are built within the commercial zones (6,637) to be terrace houses or stand alone houses. This is unrealistic as 6,637 terrace and stand alone houses within the commercial zones would displace almost all existing commercial buildings. In my opinion, the capacity for housing within the city centre should not be expected to occur.

14. If the capacity for new housing within the commercial zones is excluded, the Council except that a total of 4,320 infill/redevelopment dwellings will occur in the residential zones under the PDP. This is only marginally more than the Council expected dwellings under the ODP. There is very little difference in the capacity for infill/redevelopment housing between the ODP and the PDP.

15. There have been 46 infill/redevelopment dwellings per annum built under the ODP. This is expected to increase to 60 dwellings per annum under the PDP. This will place greater pressure on greenfield housing to provide for future demand. In particular, 454 of the 500 dwellings demanded annually under the PDP will need to be met within the greenfield areas.

16. Within the Residential Zones, Mr Heath and Mr Osborne estimate only 55 dwellings (1% of total realised capacity) is expected to be realised for less than $600,000 under the PDP. However, there is demand for 5,900 dwellings for under $600,000 (54% of all demand) meaning the greenfield locations will need to provide 5,850 dwellings for under $600,000. Mr Heath and Mr Osborne's model therefore confirms that the PDP will not enable housing that is in broad terms affordable or in-line with the demand of the average resident. This outcome would result in ongoing high housing prices and rents, which Mr Heath and Mr Osborne indicate is normal or inevitable. This would have significant economic costs that would outweigh any of the benefits Mr Heath and Mr Osborne perceive to occur from intensification.

17. The modelling provided by Mr Heath and Mr Osborne confirms that infill and development housing under the PDP will not be affordable and will not the demand of the majority of the population. This will mean the district will rely almost entirely on greenfield land to meet the future housing needs of the population.

18. Under the PDP a small number of owners, 9, control the greenfield land. This is not sufficient to provide a competitive land market.

19. Based in my analysis, there is a need for additional owners of greenfield land, around 20-25, to ensure affordable housing is able to be provided under the PDP. Without this, housing will continue to be unaffordable, and the district will continue to incur significant economic costs from not having affordable housing. These include higher living costs, lower population growth and lower business growth.

20. At present, the average price of a new dwelling in Porirua is $963,000. Under the PDP these high prices are expected to continue. The Council analysis has not considered the price of housing that is demanded, or able to be supplied under the PDP. This is a fundamental requirements for an economic analysis and is required under the NPS-UD.

5. AFFORDABLE HOUSING

21. As a preface to my evidence, it may be helpful to briefly provide some high-level comments on affordable housing.

22. Affordable housing is the biggest public policy issue in New Zealand. New Zealand presently has the second least affordable housing in the world, with a median income

to dwelling price ratio of 11.2[1]. The least affordable housing in the world is Hong Kong with a ratio of 23.2. However, given Hong Kong has a property tax instead of an income tax, it is potentially the case that New Zealand has the least affordable housing in the world. The economic costs of this are significant.

23. The simple reason why housing is unaffordable is not enough housing is being built. The solution is to build more housing and prices will come down. This is the economic law of supply and demand.

24. The residential capacity models required by the NPS-UD estimate the prices of dwellings that can be supplied to the market. Information on house prices expected under a proposed district plans is fundamental to determine the volume of new houses that are supplied, and whether demand is met.

25. The question becomes how a district plan can enable a volume of housing to be built that fully meets demand. This can be explained with a hypothetical example. If an individual building company in Porirua was able to build 3- bedroom houses in the $500,000 - $700,000 price range it could sell several hundred, or several thousand, within a few weeks. However, if this same building company could only build 3-bedroom houses in the $1,000,000 - $1,200,000 price range, it could only sell 10 or so in a few weeks. The reason is most people can afford houses in the $500,000 - $700,000 price range but not the $1,000,000 - $1,200,000 price range. The current Porirua housing market is characterised by builders that can only build 3-bedroom houses in the $1,000,000 - $1,200,000 price range. Consequently, demand is not met and fewer residents come to the city and more residents leave.

26. This raises the question of whether the Porirua District Plan could enable builders to build 3-bedroom houses in the $500,000 - $700,000 price range? The answer is yes, and the evidence is that the country's second largest and second fastest growing city does.

27. A large proportion of houses that are built in Christchurch houses in the $500,000 - $700,000 price range are in greenfield subdivisions. These have lower upfront land costs, often around $25,000 per house, and this is reflected in the lower end price of the house. However, in other major cities the upfront land cost in greenfield subdivisions is over $200,000 per house, and therefore the end house price is inevitably higher. The lower upfront greenfield land cost is possible in Christchurch because the City has several hundred live-zoned and serviced greenfield development properties that are available to prospective developers at any one time. As a result, many developers enter the market and are able to build new houses at any one point in time. By comparison other medium sized cities, e.g. Hamilton, have only 10-20 live-zoned and serviced greenfield development properties, and therefore only a small

[1] Demographia International Housing Affordability, 2022 Edition.

number of developers can enter the market supply new lots to the market at any one point in time. The technical way to understand a greenfield land market is therefore to account for three variables – annual housing demand, the number of competitors in the market and the market share that each competitor has. This is the approach adopted by the Commerce Commission and other similar government entities overseas.

28. Local authorities can enable a proportion of growth through infill/redevelopment and a proportion of growth through greenfield development. This enables infrastructure to be planned. Each housing market can then be assessed separately to determine whether it will meet demand, by dwelling type and price.

29. Irrespective of the proportion of growth that a district plan allocates to greenfield areas, which can be as low as 30% in some district plans, there needs to be an efficient greenfield market. This requires consideration of the annual demand, the number of competitors in the market and the market share that each competitor has. I have completed 8-10 assessments of the competitiveness of greenfield housing markets for proposed district plans across New Zealand. The notable finding from these assessments is that a large number of greenfield developments, typically 25-50 are required to ensure a competitive land market exists over the ten-year life of a District Plan. This is because as individual developments are completed, there are fewer developments over the life of the plan and the market quickly becomes less competitive. This presents the fundamental challenge, namely how to simultaneously enable a competitive greenfield land market, which requires at least 25 plus zoned and serviced development properties, while promoting a compact city objective. Given the unaffordability of housing in New Zealand, and Porirua, it is almost certainly the case that in terms of economic costs and benefits, the costs of unaffordable housing would outweigh the benefits of a compact city, and therefore affordable housing should be given priority.

30. In summary, affordable housing is the most important economic issue facing New Zealand and in my opinion the evidence shows it can be achieved in cities that enable a competitive greenfield land market in their district plan. The NPS-UD outlines and its supporting technical documents outline the methodology for achieving affordable housing.

6. DWELLING SUPPLY

31. This section provides an overview of the price and quantity of dwellings supplied in Porirua District.

6.1 Total Dwelling Sale Prices

32. Figure 1 shows the dwelling sales prices for Porirua for the previous year. The main points to note are:

- The average dwelling sale price is $963,000.
- The average sale price for a stand alone dwelling is $988,000.
- The average sale price for a terrace house is $ 766,000.
- A large proportion of dwellings (47%) sold were in the $700,000 - $1 million price range.
- Only 4% of dwelling sakes were for less than $400,000.
- Only 6% of dwelling sales where for less than $500,000
- Only 9% of dwellings sales were for less than $600,000.

Figure 1: Dwelling Sale Prices Porirua District (April 2021-2022)

Price Bracket	Stand Alone	Terrace	Stand Alone	Terrace	Total	% Total
Less than $300,000	20	0	0.0303	0	20	3%
$300,000-$400,000	10	0	2%	0%	10	1%
$400,000-$500,000	15	0	2%	0%	15	2%
$500,000-$600,000	15	10	2%	13%	25	3%
$600,000-$700,000	35	15	5%	19%	50	7%
$700,000-$800,000	85	20	13%	25%	105	14%
$800,000-$900,000	115	15	17%	19%	130	18%
$900,000-$1,000,000	105	10	16%	13%	115	16%
$1,000,000-$1,100,000	50	5	8%	6%	55	7%
$1,100,000-$1,200,000	45	5	7%	6%	50	7%
$1,200,000-$1300,000	45	0	7%	0%	45	6%
$1,300,000-$1,400,000	35	0	5%	0%	35	5%
$1,400,000-$1,500,000	40	0	6%	0%	40	5%
$1,500,000 Plus	45	0	7%	0%	45	6%
Total	660	80	100%	100%	740	100%

Source: Corelogic

33. The average dwelling sale price of $963,000 is unaffordable for most households. The simple reason for this is not enough dwellings are being built. The following sections provide an explanation of why not enough dwellings are being built in Porirua and whether this can be expected to change under the PDP.

6.2 New Dwelling Sale Prices

34. New dwellings are typically more expensive than existing dwellings. Figure 2 shows the price of new dwellings completed over the past two-year period. This has relied upon Code Compliance Certificates ("CCC") which are issued on the completion of a dwelling. The main points to note are:

- The average sale price of a newly constructed stand alone dwelling is $1.44 million.
- The average sale price of a newly completed terrace house is $1.07 million.

- The cost of new dwellings is prohibitively expensive for the majority of households looking to enter the Porirua housing market. This present significant economic and social costs and diminishes the Porirua economy by tens of millions of dollars annually.

Figure 2: Average Sale Price Greenfield and Infill Areas

Areas	Stand Alone	Terrace
Greenfield	$1,440,000	$1,100,000
Infill	$1,430,000	$820,000
Total	$1,440,000	$1,070,000

Source: Homes.co.nz, Urban Economics

6.3 Completed Dwellings Under ODP 2020-2022

35. This section presents the findings of an analysis of the dwellings that have been built over the past two years under the ODP. This has relied upon Code Compliance Certificates ("CCC") which are issued on the completion of a dwelling. This is the most reliable source data for dwelling completions. It is potentially the most useful data available to understand the future housing market under the PDP, because there are very few differences between the ODP and PDP in terms of infill/redevelopment and greenfield capacity[2].

36. Figures 3 and 4 show the quantity and location of greenfield and infill/redevelopment dwelling completions for the two-year period (ending March 2022). Note that this is presented as 'average annual figures' (i.e. the number of dwellings built each year on average). The main points to note are:

- A total of 256 dwellings were built each year. This is approximately half (51%) of the 500 dwellings demanded per annum, indicating a further 244 dwellings per annum are required to keep pace with demand (PE2021, Table 14).

- Of the 256 dwellings built annually, 210 (82%) were on greenfield sites, and 46 (18%) were in infill/redevelopment sites. This shows infill/redevelopment construction has a minor role in dwelling construction, which is a typical infill/redevelopment ratio for small-medium cities. Infill/redevelopment typically only occurs to any

[2] Both the ODP and PDP enable small lot infill/redevelopment as restricted discretionary activities (I rely on Ms Stephanie Blick's advice on this matter). Therefore, the infill/redevelopment capacity will not materially changed between the ODP and PDP.

significant extent in cities that have significant congestion and housing affordability issues.

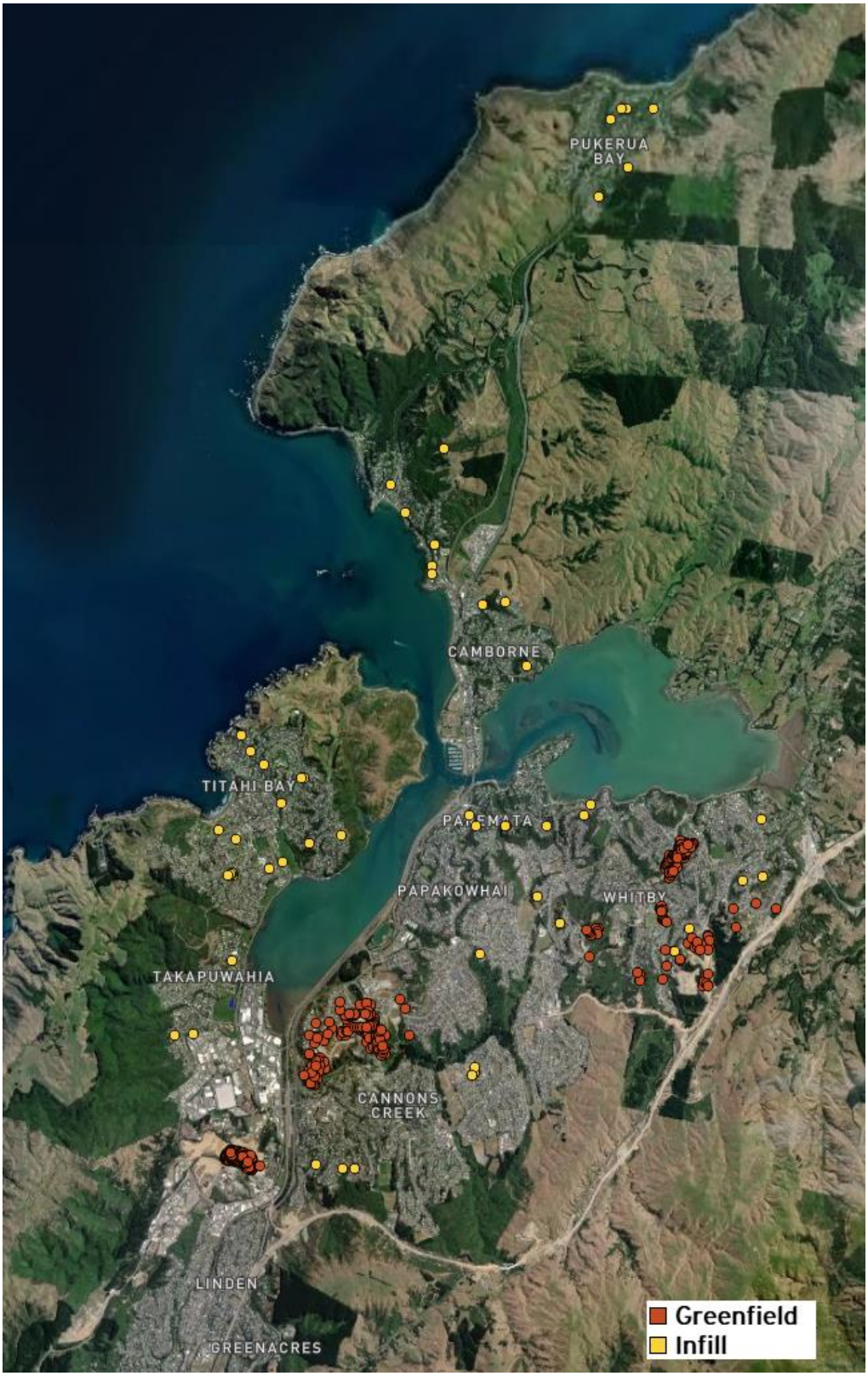
- Infill/redevelopment has occurred across the City. Titahi Bay has accounted for one third of all infill/redevelopment and this is likely to reflect the high number of larger lots, of around 1,000m^2, which typically present easy opportunities for rear lot subdivision of relatively large lots (e.g. of 500m^2).
- Only 46 infill/redevelopment dwellings occurred annually over the past two year period. Given the PDP does not materially increase the potentially for infill/redevelopment when compared to the ODP, this means that greenfield land will need to account for approximately 454 dwellings annually to keep pace with demand (of 500 dwellings per annum).

Figure 3: Completed Dwellings by Suburb March 2020-2022 (p.a.)

Suburbs	Stand Alone	Terr-ace	Total	% Total
Greenfield				
Aotea	63	5	68	26%
Kenepuru	15	53	68	26%
Whitby	60	15	75	29%
Sub-Total	**138**	**73**	**210**	**82%**
Infill/Redevelopment				
Camborne	1	-	1	0%
Cannons Creek	5	3	7	3%
Elsdon	2	-	2	1%
Paremata	4	1	5	2%
Plimmerton	4	-	4	2%
Pukerua Bay	4	1	4	2%
Ranui	2	-	2	1%
Takapuwahia	1	-	1	0%
Titahi Bay	10	5	15	6%
Waitangirua	1	-	1	0%
Whitby	6	1	6	2%
Ascot Park	1	-	1	0%
Sub-Total	**37**	**9**	**46**	**18%**
Total	**175**	**82**	**256**	**100%**

Source: PCC, Urban Economics

Figure 4: Completed Dwellings in Greenfield & Infill Locations



Source: PCC, Urban Economics

7. DWELLING DEMAND

7.1 PCC Housing Demand

37. The PE Housing Demand report was commissioned to estimate dwelling demand by type. An analysis of dwelling demand by type and price is required under the NPS-UD[3] and is more generally a basic requirement for understanding the economics of supply and demand. The PE Housing Demand report does not provide any analysis of the price of housing demanded and therefore does not meet the requirements of the NPS-UD and does not provide a useful economic analysis to inform the PDP.

38. The PE 2021 report relies on Sense Partners projections, which estimate demand for 4,960 dwellings for the 10-year period ending 2031 (Table 14, page 17). This equates to annual demand for 500 dwellings, excluding the NPS-UD 20% buffer. This demand figure has been adopted for the analysis in this report.

7.2 Demand for Dwellings by Size, Household Type and Price Point

39. This section evaluates the demand for housing in terms of the amount a household can raise on a mortgage (based on their household type and income) and the size of the house that they generally require, in terms of the number of bedrooms to accommodate the occupants.

40. Figure 5 shows the household income by household type (single, couple single parent family, family with children) for Porirua City. 23% of households earn less than $40,000 per annum and 46% of households earn less than $70,000 per annum. These low-middle income households tend to have greater challenges affording housing, either in terms of weekly rent or mortgage payments.

Figure 5: Household Income by Household Type for Porirua City

	Household Income ($000)											
Household Type	< $30	$30 - $40	$40 - $50	$50 - $60	$60 - $70	$70 - $80	$80 - $90	$90 - $100	$100 - $125	$125 - $150	$150 >	Total
Single	10%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	22%
Couple	1%	2%	2%	2%	2%	1%	1%	1%	3%	3%	7%	26%
Single Parent Family	4%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	14%
Family with Children	1%	1%	1%	2%	2%	2%	2%	2%	6%	6%	15%	38%
Total	17%	6%	6%	6%	6%	5%	5%	5%	10%	10%	23%	100%

Source: Statistics NZ, Urban Economics

[3] NPS-UD: Policy 1(a(i))

41. Figures 6 and 7 display the amount a household can raise on a mortgage by household type[4]. The mortgage amounts are calculated using industry information on the maximum mortgage that each group can access[5]. The key points to note are:

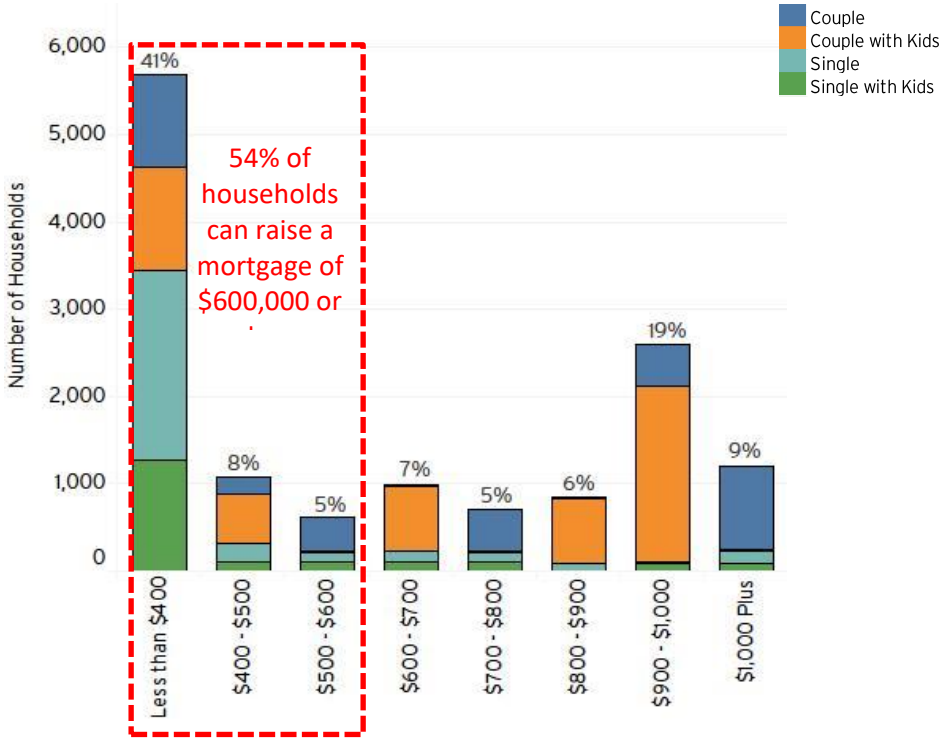
- The 17% of households earning less than $30,000 cannot currently raise a mortgage.
- 41% of households can raise a mortgage of $400,000 or less.
- 12% of households can raise a mortgage of $400,000 - $600,000.
- 54% of households can raise a mortgage of $600,000 or less.

Figure 6: Household Mortgage Potential by Income Bracket and Household Type for Porirua City

	Household Income ($000)										
Household Type	< $30	$30 - $40	$40 - $50	$50 - $60	$60 - $70	$70 - $80	$80 - $90	$90 - $100	$100 - $125	$125 - $150	$150 >
Single	-	$169	$273	$367	$455	$542	$627	$711	$859	$1,071	$1,179
Couple	-	$50	$154	$248	$336	$423	$507	$592	$740	$952	$1,060
Single Parent Family	-	$76	$181	$274	$363	$449	$534	$618	$767	$978	$1,087
Family with Children	-	-	$62	$155	$243	$330	$415	$499	$647	$859	$967

Source: Statistics NZ, ANZ, Urban Economics

Figure 7: Household Mortgage Potential by Income Bracket and Household Type for Porirua City



Source: Statistics NZ, ANZ, Urban Economics

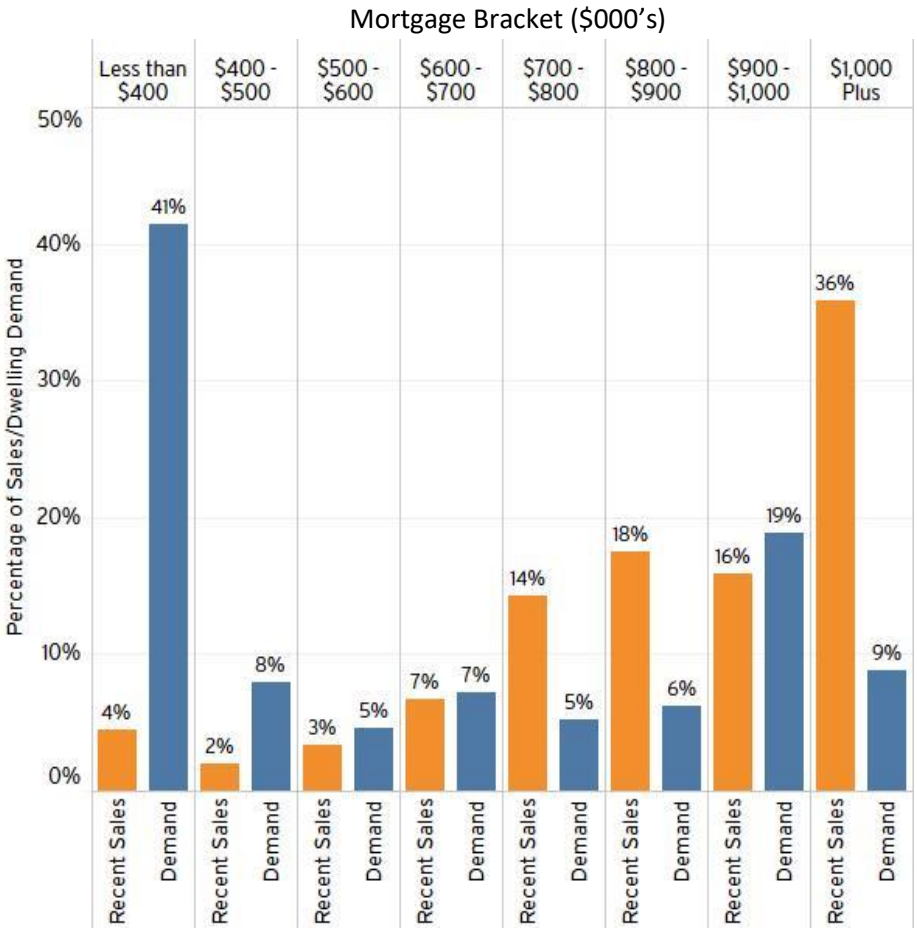
[4] Multi-family household types and other less common household types were excluded from this analysis. Households that rent are included in this analysis, as rent payments for dwellings of each value range are broadly equivalent to mortgage payments for the same value range.

[5] Each household type was entered into ANZ's online tool for maximum mortgage borrowing. Each household was assumed to have one car. Couples with children were assumed to have two children.

7.3 Prices of Recent Sales vs Dwellings that Households can Afford to Purchase

42. The following figures display the proportion of recent sales by price and mortgage that households can raise in Porirua City (referred to as "demand" in the figure) and the demand supply differentials. It is evident that the majority of recent sales are in the $600,000 plus price bracket). This highlights that Porirua's housing market does not currently provide for lower income households that seek a dwelling in the under $600,000 price bracket. As shown below, only 9% of dwellings sold in Porirua are under $600,000, however 54% of demand is for dwellings of under $600,000. This is resulting in significant economic and social costs and does not meet the provisions of the NPS-UD[6].

Figure 8: Dwelling Demand vs Recent Sales (April 2021 – April 2022) by Mortgage Bracket



Source: Statistics NZ, ANZ, Urban Economics

[6] NPS-UD: Policy 1(a(i))

Figure 9: Recent Sales Supply Shortfall/Surplus

Price Bracket	Demand Count	Demand %	Supply Count	Supply %	Supply Shortfall /Surplus
Less than $400	5,694	41%	30	4%	-37%
$400 - $500	1,084	8%	15	2%	-6%
$500 - $600	626	5%	25	3%	-2%
$600 - $700	989	7%	50	7%	0%
$700 - $800	710	5%	105	14%	9%
$800 - $900	845	6%	130	18%	12%
$900 - $1,000	2,592	19%	115	16%	-3%
$1,000 Plus	1,208	9%	270	36%	27%

Source: Statistics NZ, ANZ, Urban Economics

8. DWELLING CAPACITY UNDER THE PDP

43. This section evaluates the capacity for dwellings under the PDP. This is assessed in terms of Theoretical Capacity (the dwellings that are enabled by the PDP provisions), Commercially Feasible Capacity (the dwellings that are commercially feasible to build) and Realisable Capacity (the dwellings that are reasonably expected to be realized under the PDP). It is the realisable capacity that is of most importance to the District Plan review, and in particular the Silverwood submission.

8.1 Theoretical Capacity

44. Theoretical capacity is the number of dwellings that can be built within the District Plan rules on the relevant zoned land. It does not account for commercial feasibility or other constraints, such as infrastructure availability.

45. The PE2020 report identifies theoretical capacity for 36,084 dwellings under the ODP (Table 3, page 30). The PE2021 report identifies theoretical capacity for 144,573 dwellings under the PDP (Table 10, page 14). The significant increase between the capacity estimates for the ODP and PDP is a result of:

- The exclusion of commercial zone land from the PE2020 report and the inclusion of commercial zone land in the PE2021 report. The PE2021 report identifies that 53,392 dwellings (37%) can be built in commercial zone land (Table 12, page 15).
- The PE2021 report appears to assume very small lot sizes, of around 100m^2, and a three storey dwellings will predominate (inferred from the small buildable land area assumptions of 50m^2 for a stand alone dwelling of 40m^2 for a terrace dwelling, page 4).

46. The theoretical capacity estimates are considered fanciful because it is not possible to build 53,392 stand alone and terrace dwellings in the commercial zones, and there is

limited demand for stand alone and terrace houses with small footprints of 40-50m^2. The PE2021 report does not provide a profile of the dwellings that are able to be built by type, lot size, dwelling size, storeys, and price point. This is a fundamental requirement for an economic assessment of a housing market for a District Plan review and is required by the NPS-UD.

8.2 Commercially Feasible Capacity

47. The PE2020 report concludes the Operative District Plan has sufficient capacity to meet demand until 2043 however that there is a small shortfall by 2048 of 1,600 dwellings (table 19, page 48).

48. The PE2021 report concludes the Proposed District Plan has sufficient capacity to meet demand to 2051, with 2,533 more supply than demand over this period (table 15, page 17).

49. The PE reports do not consider whether the price of dwellings that are feasible aligns with the demand for dwellings by price. This is a basic requirement of an economic assessment and the NPS-UD and is necessary to enable an information conclusion on the Silverwood submission.

8.3 Realisable Capacity

50. The NPS-UD requires an estimate of 'reasonable expected to be realized capacity'[7]. For consistency with the PE reports this is referred to as 'realisable capacity'. The main difference in the realisable capacity estimates between the PE2020 and PE2021 reports is due to residential capacity being anticipated in the commercial zones in the PE2021 report. The PE2021 report estimates that under the PDP, out of the total realisable capacity of 10,957 dwellings, 6,833 (62%) are on commercial zone land. By comparison, the PE2020 report does not estimate any realisable capacity in commercial zoned for the ODP.

51. Porirua has 50 hectares of commercial zone land under the PDP. The majority (40 hectares) is in the CBD. An additional 6,833 dwellings across 50 hectares of land would result in one dwelling per 110m^2 of commercial zone land. With regard to the capacity for 6,833 dwellings in commercial zone land, the PE2021 report states:

> *"Similarly, although the feasible max profit option indicated* ***capacity for 4,096 Apartments, only 196 are expected to be realized by the market****. Porirua is yet to see any large-scale apartment development enter its market. Demand for apartment is typically a smaller proportion of the New Zealand market and Porirua directly competes with Wellington for this demand.*

[7] NPS-UD: Provision 3.2(2(c))

However, it should be noted that neither the Theoretical or Feasible Model accounts for the ***ground floor retail that may or may not be imposed on the residential development in the centre. This requirement may necessitate above grade apartments be built in the Centre Zone in favour of the Standalone and Terraced options****" (page 16, PE 2021, emphasis added)*

52. The PE2021 report therefore estimates realisable capacity for 196 apartments and 6,637 stand alone and terrace houses within the commercial zones. This however does not meet the definition of realisable capacity (i.e. reasonable expected to be realized) under the NPS-UD for two reasons. First, the majority of the commercial zone land is currently developed and it would not be feasible to demolish an existing commercial building to replace it with stand alone and terrace dwellings. Second, there is insufficient land within the commercial zones to accommodate 6,637 stand alone and terrace houses, as this would effectively displace the majority of commercial activity from the commercial zones. If this were to occur, it would undermine the commercial function of the commercial zones.

53. There appears to be a significant error in the PE2021 report. Namely, only 196 apartments are estimated to be realisable in the commercial zones, however of the 6,637 realisable stand alone and terrace houses in the commercial zones, given they require retail at grade, this would "necessitate above grade apartments". This effectively means that the 6,637 realisable stand alone and terrace houses in the commercial zones are actually apartments (multiple level building of concrete/steel rather than timber construction) however it was previously concluded in the PE2021 report that apartments are not expected to be realized. By implication, the total estimated realisable capacity of 10,957 dwellings appears to be incorrect, and the PE2021 report appears to conclude that total realisable capacity is only 4,320 dwellings, only marginally more than that estimated for the ODP in the PE2020 report (2,926 dwellings, Table 13, page 41).

54. I requested information from the capacity model prepared by Mr Osborne and Mr Heath on price, type size and lot size of dwellings that are estimated to be realised capacity under the PDP. This resulted in expert conferencing and the preparation of a Joint Witness Statement in which it was agreed that this information was pertinent/necessary for understanding housing affordability and housing supply under the PDP. Subsequently Mr Osborne provided the following table of outputs from his capacity model, as presented in the PE2021 Report.

Figure 10: PE2021 Realised Capacity Model Output Data

All Zones

Price Band ($000)		Apartment	Stand alone	Terraced	Total	%
Lower	Upper					
Under $600		11	207	13	231	2%
$600	$650	21	401	246	668	6%
$650	$700	18	275	330	623	6%
$700	$750	26	575	448	1049	10%
$750	$800	10	669	505	1184	11%
$800	$850	7	540	948	1495	14%
$850	$900	3	715	1239	1957	18%
$900	$950	37	556	417	1010	9%
$950	$1,000	8	348	480	836	8%
$1,000	$1,050	12	519	259	790	7%
$1,050	$1,100	26	87	52	165	2%
$1,100	$1,150	9	112	63	184	2%
$1,150	$1,200	1	51	15	67	1%
Over $1,200		3	134	561	698	6%
Total		192	5189	5576	10957	

Floor Area (sqm		Apartment	Stand alone	Terraced	Total	
Lower	Upper					
25	50	19	0	746	765	7%
50	75	87	1822	1200	3109	28%
75	100	85	1253	1100	2438	22%
100	125	0	109	490	599	5%
125	150	1	1984	1912	3897	36%
Over 150		0	21	128	149	1%
Total		192	5189	5576	10957	

Lots Size (sqm)		Apartment	Stand alone	Terraced	Total	
Lower	Upper					
0	50	188	0	0	188	2%
50	75	4	676	1250	1930	18%
75	100	0	2953	1867	4820	44%
100	150	0	38	125	163	1%
150	200	0	382	389	771	7%
200	250	0	163	573	736	7%
250	300	0	278	675	953	9%
300	350	0	301	413	714	7%
350	400	0	160	146	306	3%
400	450	0	116	52	168	2%
450	500	0	42	28	70	1%
Over 500		0	80	58	138	1%
Total		192	5189	5576	10957	

Commercial Zones

Price Bands ($000)		Apartment	Stand alone	Terraced	Total	%
Lower	Upper					
Under $600		11	156	9	176	3%
$600	$650	21	300	184	505	7%
$650	$700	18	206	247	471	7%
$700	$750	26	431	336	793	12%
$750	$800	10	501	378	889	13%
$800	$850	7	405	464	877	13%
$850	$900	3	536	450	989	14%
$900	$950	14	334	181	529	8%
$950	$1,000	8	0	0	8	0%
$1,000	$1,050	7	389	194	590	9%
$1,050	$1,100	26	82	49	157	2%
$1,100	$1,150	9	106	59	174	3%
$1,150	$1,200	1	48	14	63	1%
Over $1,200		3	127	533	663	10%
Total		164	3621	3098	6883	

Size Bands		Apartment	Stand alone	Terraced	Total	
Lower	Upper					
25	50	16	0	686	702	10%
50	75	74	1689	1021	2784	40%
75	100	73	831	847	1751	25%
100	125	0	50	255	305	4%
125	150	1	1051	289	1341	19%
Over 150		0	0	0	0	0%
Total		164	3621	3098	6883	

Size Bands		Apartment	Stand alone	Terraced	Total	
Lower	Upper					
0	50	160	0	0	160	2%
50	75	4	676	1250	1930	28%
75	100	0	2937	1848	4785	70%
100	150	0	0	0	0	0%
150	200	0	0	0	0	0%
200	250	0	0	0	0	0%
250	300	0	4	0	4	0%
300	350	0	0	0	0	0%
350	400	0	4	0	4	0%
400	450	0	0	0	0	0%
450	500	0	0	0	0	0%
Over 500		0	0	0	0	0%
Total		164	3621	3098	6883	

Residential Zones

Price Bands ($000)		Apartment	Stand alone	Terraced	Total	%
Lower	Upper					
Under $600		0	51	4	55	1%
$600	$650	0	101	62	163	4%
$650	$700	0	69	83	152	4%
$700	$750	0	144	112	256	6%
$750	$800	0	168	127	295	7%
$800	$850	0	135	484	618	15%
$850	$900	0	179	789	968	24%
$900	$950	23	222	236	481	12%
$950	$1,000	0	348	480	828	20%
$1,000	$1,050	5	130	65	200	5%
$1,050	$1,100	0	5	3	8	0%
$1,100	$1,150	0	6	4	10	0%
$1,150	$1,200	0	3	1	4	0%
Over $1,200		0	7	28	35.1	1%
Total		28	1568	2478	4074	

Size Bands		Apartment	Stand alone	Terraced	Total	
Lower	Upper					
25	50	3	0	60	63	2%
50	75	13	133	179	325	8%
75	100	12	422	253	687	17%
100	125	0	59	235	294	7%
125	150	0	933	1623	2556	63%
Over 150		0	21	128	149	4%
Total		28	1568	2478	4074	

Size Bands		Apartment	Stand alone	Terraced	Total	
Lower	Upper					
0	50	28	0	0	28	1%
50	75	0	0	0	0	0%
75	100	0	16	19	35	1%
100	150	0	38	125	163	4%
150	200	0	382	389	771	19%
200	250	0	163	573	736	18%
250	300	0	274	675	949	23%
300	350	0	301	413	714	18%
350	400	0	156	146	302	7%
400	450	0	116	52	168	4%
450	500	0	42	28	70	2%
Over 500		0	80	58	138	3%
Total		28	1568	2478	4074	

Source: Property Economics

55. The table presented in Figure 10 includes information on the price, size and lot size of dwellings, for All Zones (the residential and commercial zones combined) and the commercial zones. The percentage figures and yellow highlighting has been inserted. The key points to note from Figure 10 are:

- Mr Heath and Mr Osborn estimate realised capacity for 6,719 Terrace Houses and Stand Alone dwellings within the Commercial Zones. These dwellings are on lots of 50-100m^2. In total, these dwellings would utilise 46 hectares of Commercial Zone land. This is the majority of the 50 hectares of Commercial Zone land under the PDP. This outcome is practically impossible as it would need to displace nearly all business activity from the Commercial Zones. It is unlikely that there is demand for these small terrace and stand alone dwellings in the Commercial Zones, given they have an average lot size of 80m^2, an average floor area of 80m^2 and an average price of $870,000. Mr

Heath and Mr Osborne rely on this realised capacity (80sqm dwellings on 80sqm lots) in the Commercial Zones to provide for 63% of the districts future housing needs. This is unrealistic. If it were to eventuate (hypothetically) it would undermine the Commercial zones and the economy. In my opinion there should be no reliance on this capacity to meet the district's future housing needs, and instead the district should rely solely on the residential zones.

- Within the Residential Zones, Mr Heath and Mr Osborne estimate total realised capacity for 4,074 dwellings, comprised of 61% terraced houses and 35% stand alone houses. The average price of these is $870,000.

- Within the Residential Zones, Mr Heath and Mr Osborne estimate only 55 dwellings (1% of total realised capacity) is expected to be realised for less than $600,000 under the PDP. However, there is demand for 5,900 dwellings for under $600,000 (54% of all demand) meaning the greenfield locations will need to provide 5,850 dwellings for under $600,000. Mr Heath and Mr Osborne's model therefore confirms that the PDP will not enable housing that is in broad terms affordable or in-line with the demand of the average resident. This outcome would result in ongoing high housing prices and rents, which Mr Heath and Mr Osborne indicate is normal or inevitable. This would have significant economic costs that would outweigh any of the benefits Mr Heath and Mr Osborne perceive to occur from intensification.

- In my correspondence with Property Economics, they noted that the realised capacity model outputs provided are at current prices, and that some infill/redevelopment dwellings could be provided at a lower price, as long as the profit margin of 20% was available to the developer. In my opinion the evidence does not support his hypothesis. Namely, in Auckland, the upzoning of residential property to enable infill/redevelopment resulted in a commensurate increase in the value of those properties, as developers quickly bided the prices up to reflect the development potential[8]. The net result in Auckland since the AUP has been operative (2016) has been an ongoing increase in the price of dwellings, with less affordability, and this is likely to reflect the historic shortage and the preference consumers have for larger family dwellings rather than small terrace houses. Given the Auckland experience with upzoning has not resulted in affordable housing, and I am not aware of any evidence that supports the opposite, I do not consider Mr

[8] The study concluded that "Upzoning significantly increases the redevelopment premium but the overall effect on house prices depends on the economic potential for site redevelopment, with underdeveloped properties appreciating relative to intensively developed properties." (The effect of upzoning on house prices and redevelopment premiums in Auckland, New Zealand', 2020, Ryan Greenaway-McGrevy, Gail Pacheco, Kade Sorensen)

Osborn's theory can be relied upon, and instead his estimated dwellings prices under the PDP are the most likely future outcome.

- The modelling provided by Mr Heath and Mr Osborne confirms that infill and development housing under the PDP will not be affordable and will not the demand of the majority of the population. This will mean the district will rely almost entirely on greenfield land to meet the future housing needs of the population.

56. Mr Heath and Mr Osborne have not considered the price of dwellings expected to be supplied under the PDP or the price of dwellings that are demanded under the PDP. The economic law of supply and demand shows that the price of a good impacts the quantity supplied (refer to section 10 of this evidence). It is therefore not possible to undertake and economic analysis of the housing market under the PDP without considering the price of dwellings. For this reason, the analysis and modelling provided by Mr Heath and Mr Osborne does not meet the basic requirements of an economic analysis and therefore does not provide any basis for understanding whether the PDP would enable an efficient housing market that meets the housing needs of future residents.

8.4 Commercial Feasibility Sample Analysis

57. A sample of 12 infill/redevelopment properties and 6 greenfield lots have been evaluated to determine the commercial feasibility of their development. These properties have been chosen at random that had subdivision potential within the general residential and medium density residential zones. For each site, a small, medium and large dwelling scenario has been evaluated.

58. A summary table of development feasibility assessments is displayed in Figure 11. Detailed commercial feasibility assessments are provided in Appendix 1. The key points to note from the summary table below are:

- Only one infill stand alone property are commercially feasible.
- No terrace house redevelopment properties are commercially feasible.
- Two thirds of the greenfield site properties were commercially feasible for terrace house development.

Figure 10: Development Feasibility Assessment Summary Table

Stand Alone Infill														
			Small Units				Medium Units				Large Units			
Site ID	Suburb	Zone	Unit Size	Number of Units	Unit Price	Profit Margin	Unit Size	Number of Units	Unit Price	Profit Margin	Unit Size	Number of Units	Unit Price	Profit Margin
1	Titahi Bay	Gen. Res.	140	1	$889,000	0%	180	1	$1,023,000	3%	220	1	$1,157,000	7%
2	Paremata	Gen. Res.	140	1	$1,119,000	8%	180	1	$1,288,000	12%	220	1	$1,457,000	18%
3	Camborne	Gen. Res.	140	1	$1,245,000	8%	180	1	$1,432,000	13%	220	1	$1,620,000	19%
4	Aotea	Gen. Res.	140	1	$1,086,000	5%	180	1	$1,250,000	9%	220	1	$1,413,000	14%
5	Whitby	Gen. Res.	140	1	$1,221,000	7%	180	1	$1,405,000	11%	220	1	$1,589,000	16%
6	Aotea	Gen. Res.	140	1	$1,086,000	6%	180	1	$1,250,000	10%	220	1	$1,413,000	15%
7	Waitangirua	Med. Dens.	140	2	$732,000	-1%	180	2	$843,000	2%	220	2	$953,000	7%
8	Cannons Creek	Med. Dens.	140	2	$680,000	-3%	180	2	$782,000	0%	220	2	$885,000	4%
9	Takapuwahia	Med. Dens.	140	2	$785,000	4%	180	2	$903,000	8%	220	2	$1,021,000	13%
10	Kenepuru	Med. Dens.	140	1	$1,020,000	5%	180	1	$1,173,000	9%	220	1	$1,327,000	14%
11	Ranui	Med. Dens.	140	3	$858,000	14%	180	3	$987,000	18%	220	3	$1,116,000	24%
12	Ascot Park	Med. Dens.	140	1	$826,000	0%	180	1	$951,000	3%	220	1	$1,075,000	8%
Terrace House Redevelopment														
			Small Units				Medium Units				Large Units			
Site ID	Suburb	Zone	Unit Size	Number of Units	Unit Price	Profit Margin	Unit Size	Number of Units	Unit Price	Profit Margin	Unit Size	Number of Units	Unit Price	Profit Margin
1	Titahi Bay	Gen. Res.	80	6	$551,000	-3%	120	6	$658,000	-3%	160	6	$765,000	-1%
2	Paremata	Gen. Res.	80	5	$693,000	10%	120	5	$828,000	12%	160	5	$963,000	16%
3	Camborne	Gen. Res.	80	4	$771,000	2%	120	4	$921,000	6%	160	4	$1,071,000	11%
4	Aotea	Gen. Res.	80	4	$673,000	-7%	120	4	$803,000	-4%	160	4	$934,000	1%
5	Whitby	Gen. Res.	80	5	$756,000	-2%	120	5	$903,000	2%	160	5	$1,050,000	7%
6	Aotea	Gen. Res.	80	5	$673,000	-1%	120	5	$803,000	1%	160	5	$934,000	5%
7	Waitangirua	Med. Dens.	80	8	$453,000	-9%	120	8	$542,000	-10%	160	8	$630,000	-9%
8	Cannons Creek	Med. Dens.	80	7	$421,000	-15%	120	7	$503,000	-17%	160	7	$585,000	-15%
9	Takapuwahia	Med. Dens.	80	8	$486,000	-4%	120	8	$580,000	-5%	160	8	$675,000	-4%
10	Kenepuru	Med. Dens.	80	7	$631,000	14%	120	7	$754,000	13%	160	7	$877,000	16%
11	Ranui	Med. Dens.	80	11	$531,000	3%	120	11	$635,000	2%	160	11	$738,000	4%
12	Ascot Park	Med. Dens.	80	7	$512,000	-3%	120	7	$611,000	-4%	160	7	$711,000	-2%
Terrace House Greenfield														
			Small Units				Medium Units				Large Units			
Site ID	Suburb	Zone	Unit Size	Number of Units	Unit Price	Profit Margin	Unit Size	Number of Units	Unit Price	Profit Margin	Unit Size	Number of Units	Unit Price	Profit Margin
13	Kenepuru	Med. Dens.	80	6	$631,000	32%	120	6	$754,000	28%	160	6	$877,000	29%
14	Kenepuru	Med. Dens.	80	6	$631,000	24%	120	6	$754,000	22%	160	6	$877,000	23%
15	Aotea	Gen. Res.	80	4	$673,000	19%	120	4	$803,000	18%	160	4	$934,000	21%
16	Aotea	Gen. Res.	80	3	$673,000	4%	120	3	$803,000	6%	160	3	$934,000	10%
17	Whitby	Gen. Res.	80	4	$756,000	50%	120	4	$903,000	46%	160	4	$1,050,000	48%
18	Whitby	Gen. Res.	80	3	$756,000	19%	120	3	$903,000	21%	160	3	$1,050,000	25%

Source: Urban Economics

59. In summary, this indicates that the infill and redevelopment properties have a low level of commercial feasibility. This is confirmed by the analysis of the actual builds that have occurred over the past two year, with only 46 infill and development dwelling being completed annually (refer Section 3.3). This is also confirmed by the analysis completed by The Property Group in their 2019 report which evaluated the commercial feasibility of medium density housing:

"The feasibility assessment has demonstrated that whilst there are areas suitable for development, medium density development is challenging in current market conditions. Increasing land and construction costs over the last five years means that unless the price of medium density residential dwellings rises significantly, transition of sites from low density to medium density is unlikely. Notional development sites in the suburb of Whitby were the only projects that

achieved a level of profitability that the market would potentially pursue to the next step of due diligence." (page 4)

60. In summary, the level of infill/redevelopment that occurred under the ODP provides the most reliable basis for predicting the level of infill/redevelopment that will occur under the PDP, as there is no material change to the level of infill/redevelopment that can occur between the two plans. However, as a conservative assumption, it is assumed that 60 infill/redevelopment dwellings will occur annually under the PDP.

9. ANALYSIS OF COMPETITIVE LAND & DEVELOPMENT MARKETS UNDER THE PDP

61. The NPS-UD requires an evaluation of whether there is a competitive land and development market. The Herfindahl-Hirschman index[9] (H-H) is an industry best practice tool used to measure market concentration. Authorities that deal with regulating the competitiveness of markets such as the Commerce Commission domestically and the US Department of Justice use the Herfindahl-Hirschman (H-H) Index to measure whether markets are or will become too concentrated if particular mergers occur, in order to ensure competitive markets. Most notably, the Commerce Commission have used the H-H index to assess the competitiveness of the supermarket and telecommunications sectors in New Zealand over recent years. The US Department of Justice considers HH index values between 1,500 – 2,500 to be moderately concentrated markets and values in excess of 2,500 to be highly concentrated markets.

62. The H-H index is considered to be the best tool in determining the competitiveness of an urban land market, with respect to achieving the following objectives and policies from the NPS-UD:

Objective 2: "Planning decisions improve housing affordability by supporting competitive land and development markets"),
Policy 1 (a(i)): "Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum meet the needs, in terms of type, price, and location, of different households",
and Policy 1 (d): "Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets".

63. Highly concentrated land and development markets (H-H values greater than 2,500) lead to monopolistic market structure, whereby the producers (developers) have an

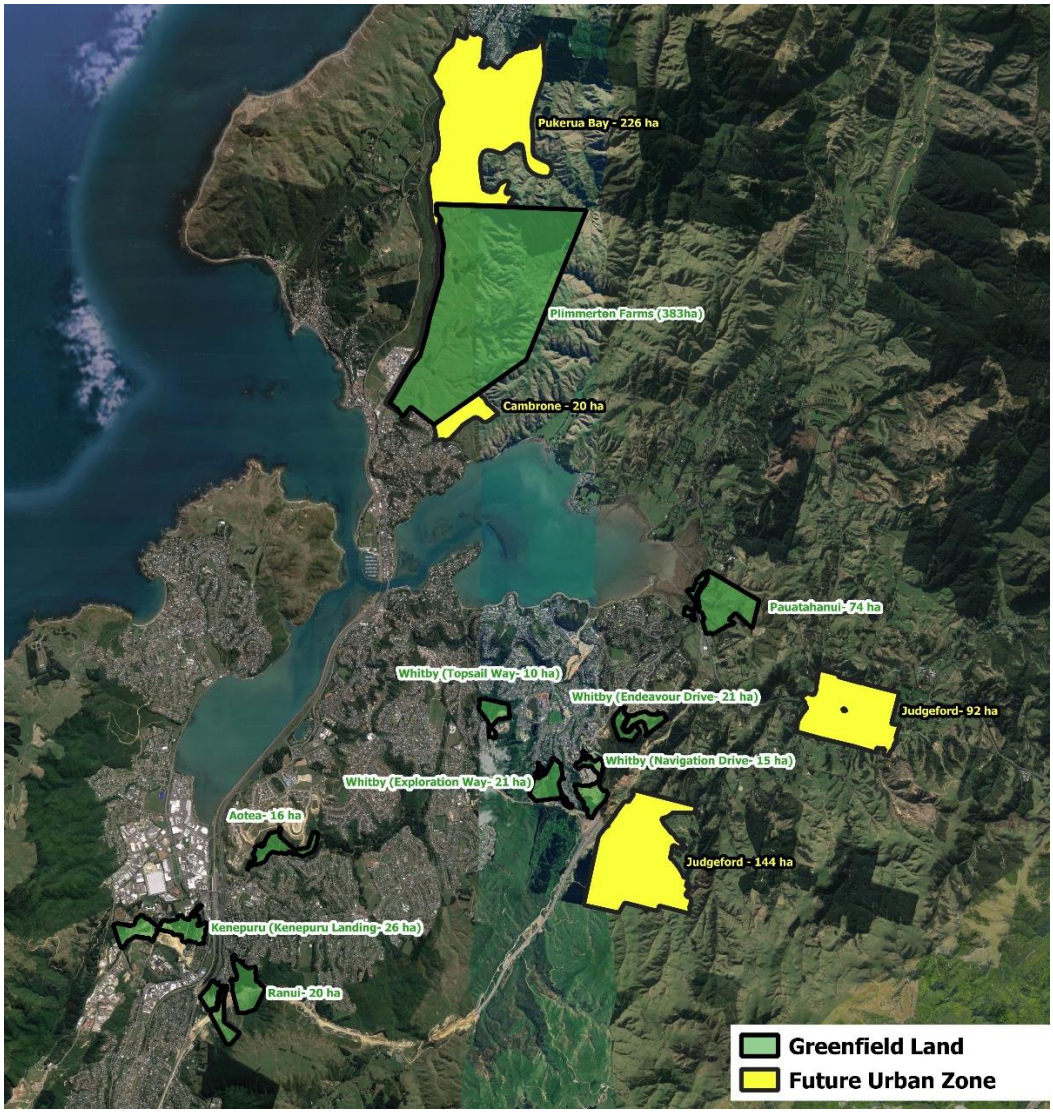
[9] The Herfindahl-Hirschman index is calculated by squaring each supplier's market shares and then summing them. The maximum value is 10,000.

exclusive power of the supply of dwellings to the market and therefore are price-markers. This discourages competition and leads to higher prices. As a result, a highly concentrated land and development market is unlikely to meet the above relevant policies and objective of the NPS-UD.

64. Figure 12 outlines the locations of the current supply of live zoned greenfield and FUZ land. Across the Porirua City there are 9 locations of live zoned greenfield land (586 Ha), and 3 locations of FUZ land (482 Ha).

65. Of the live-zoned greenfield land, Plimmerton Farms is the largest site with 383 ha, followed by Pauatahanui with 74 ha. All other remaining locations are significantly smaller.

Figure 11: Location of Current Supply of Greenfield Land



Source: PCC, Urban Economics

66. An H-H index analysis has been undertaken for the Porirua City land market under the PDP. Figures 13 and 14 display the H-H index values likely to occur in the Porirua

City land market based on both the current supply of live zoned greenfield land, and the supply of live zoned greenfield land plus Future Urban Zone (FUZ) land. The analysis adopts greenfield demand of 440 dwellings per annum in and an individual developer supply capped at 100 dwellings per annum (this generally reflects the maximum amount a greenfield developer can supply to the market in any given year accounting for physical and market limitations). To account for limitations for potential developments to enter the market over a ten-year time period, it is assumed that 30% of the estimated capacity is land banked, accounting for ongoing farming or lack of desire or capability to develop the land.

67. The key points to note from the figures below are:

Live Zoned Land Scenario

(a) The H-H index for the live zoned land scenario indicates that at present the Porirua City greenfield market is 'moderately concentrated' under the Proposed District Plan, with a value of 2,060. This is in large part due to the significant number of small greenfield subdivisions that balance out the market share. By 2024, the market will be highly concentrated once the supply from small developments is exhausted.

(b) When accounting for land banking, the H-H index has a value of 4,060, indicating that the greenfield market is 'highly concentrated'. The HHI continues to increase to 6,150 in 2025 to 10,000 in 2029. The HHI increases as the number of competitors in the market decreases to one.

Live Zoned Land Plus FUZ Land Scenario

(a) In this scenario it is assumed that 100% of FUZ land is immediately available in year 1. However, it should be noted that the supply of FUZ land is more than likely to occur in the medium-long term.

(b) With the addition of FUZ Land the H-H index indicates that at present the Porirua greenfield market would have a low level of concentration, with a value of 930. When accounting for land banking under this scenario, the H-H index increases to 1,700, indicating that the greenfield market would become 'moderately concentrated'.

(c) The H-H index values continue to increase as the number of competitors in the market decreases. This highlights the importance of new suppliers (developers) entering the market as existing supply (developments) depletes to avoid large developments obtaining a greater market share.

68. The number of competitors and the total quantity of lots in a residential greenfield market significantly contributes to the level of concentration that occurs. As shown in the FUZ land scenario in Figure 14, the addition of more competitors and lots/dwellings supplied results in a notably more competitive market. This highlights a

significant addition of greenfield land, including all current FUZ land, to meet Policy 1(a(i), Policy 1(d) and Objective 2 of the NPS-UD. The H-H index analysis establishes that basic rule that a supply of approximately 9,000 lots across 16 medium-large developments is required in any one year to ensure there is a competitive greenfield land market in Porirua City.

Figure 12: Porirua City Live Zone Greenfield Land Market Concentration

	Live Zoned Land Scenario							
	No Land Bank				30% Land Bank			
Year	Number of Competitors	Remaining Dwelling Capacity	Herfindahl-Hirschman Index	Market Concentration	Number of Competitors	Remaining Dwelling Capacity	Herfindahl-Hirschman Index	Market Concentration
2022	53	4,850	2,060	Moderate	9	3,400	4,060	High
2023	32	4,410	2,430	Moderate	4	2,960	4,640	High
2024	15	3,970	2,880	High	4	2,560	5,360	High
2025	12	3,530	3,440	High	3	2,220	6,150	High
2026	9	3,090	4,180	High	3	1,920	7,090	High
2027	5	2,650	5,150	High	2	1,630	8,560	High
2028	3	2,290	5,990	High	2	1,430	9,630	High
2029	3	1,990	6,850	High	1	1,300	10,000	High
2030	3	1,690	8,210	High	1	1,200	10,000	High
2031	2	1,470	9,360	High	1	1,100	10,000	High

Source: Urban Economics

Figure 13: Porirua City Live Zone plus Future Urban Zone Greenfield Land Market Concentration

	Live Zoned Land + Future Urban Zone Land Scenario*							
	No Land Bank				30% Land Bank			
Year	Number of Competitors	Remaining Dwelling Capacity	Herfindahl-Hirschman Index	Market Concentration	Number of Competitors	Remaining Dwelling Capacity	Herfindahl-Hirschman Index	Market Concentration
2022	75	12,850	930	Low	30	9,000	1,700	Moderate
2023	59	12,410	980	Low	20	8,560	1,840	Moderate
2024	41	11,970	1,040	Low	17	8,120	1,980	Moderate
2025	34	11,530	1,100	Low	11	7,680	2,130	Moderate
2026	31	11,090	1,170	Low	7	7,240	2,230	Moderate
2027	29	10,650	1,240	Low	6	6,800	2,320	Moderate
2028	23	10,210	1,310	Low	6	6,360	2,410	Moderate
2029	17	9,770	1,380	Low	6	5,920	2,520	High
2030	16	9,330	1,460	Low	6	5,480	2,670	High
2031	12	8,890	1,530	Moderate	5	5,040	2,850	High

Source: Urban Economics

*Assumed FUZ land supply from year 1.

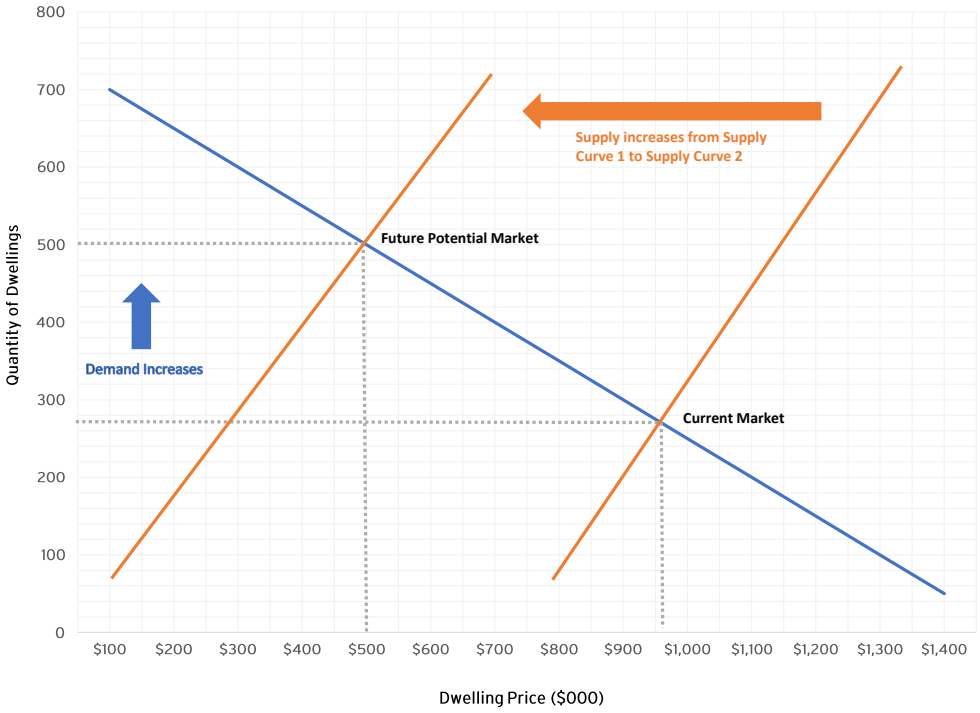
10. RELATIONSHIP BETWEEN DWELLING QUANTITY & PRICE

69. The law of demand says that at higher prices, buyers will demand less of an economic good (in this case housing). The law of supply says that at higher prices, sellers will supply more of an economic good. These two laws interact to determine the actual market price and volume of goods that are traded on a market. To put this in simple terms, if the price of housing is high, fewer people will be able to afford a house, and demand will not be fully met. This would result in over-crowding, more people leaving the district, and fewer people coming to the district.

70. Figure 15 outlines an indicative demand and supply curve for Porirua City. The demand curve is shown with the blue line. The demand curve shows the relationship between the price of dwellings and the quantity of dwellings demanded. Two supply curves are shown with orange lines. Supply curve 1 shows the 'current market' in Porirua City, in which the average price of dwellings is $963,000 and the quantity demanded annually at this price is 270 dwellings. Supply curve 2 shows the 'future potential market'. This depicts the market sought by the District Plan which has the quantity demanded annually of 500 dwellings. To achieve this quantity of dwellings demanded annually, the price of dwellings needs to reduce. Under this indicative example, the average price of dwellings would need to reduce to $500,000 to enable annual demand for 500 dwellings to be realised. This is because residents would only choose to live in Porirua if dwellings are available at a lower price. A similar example can be provided for cars – if electric cars decreased in price (e.g. to $30,000) demand would increase.

71. It should be noted that the average dwelling price that would enable the demand forecast has not been estimated. This can however be estimated by calculating the price elasticity of demand. This would quantify the impact that price has on the number of people decided to reside in Porirua, and is quite topical given the recent exodus from the main cities to smaller regional locations, which is in large part due to house prices. An estimate of the price elasticity of demand would be a useful assessment for the plan review process, given affordable housing is the most important issue facing the District.

Figure 14: Demand & Supply Analysis



Source: Urban Economics

11. NPS-UD & RMA

72. Mr. Osborne and Mr. Heath in their report entitled Porirua Future Urban Zone Economic Overview (April 2022) state:

> *As indicated above the assessment of effects of 'excess' greenfield land and FUZ is not simply based on market effects but on the impacts of the PDP to meet its objectives. UFD-01 of the PDP stated 'Porirua growth in a planned, cohesive, compact and structured way. UFD-02 stated "there is a sufficient supply of land available at all times to meet the City's medium term hosing, commercial, industrial and recreational needs.*
>
> *Ultimately the ability for Porirua to grow in a compact way will be impacted by both the level of zoned greenfield land and the indication provided to the market of the level of growth expected to be accommodate within FUZ land.*
> *Historically Porirua has accommodated a significant proportion of its growth in greenfield area. As identified above this accommodation has potentially led to economic and social inefficiencies.*
>
> *Over the same time land and house priced have continued to rise in line with national growth rates. This national issue has led to the*

development of the NPS UD that not only seeks to provide for sufficient residential capacity within territory authority area , but to provide these efficiently through compact urban form and intensified development. (page 24-25).

73. Mr. Osborne and Mr. Heath have constrained their analysis with the assumption that the PDP and NPS-UD objectives support infill/redevelopment and discourage greenfield development. However, neither the PDP or NPS-UD seek to do this, instead both require the benefits of the efficient operation of the housing market (i.e. affordable housing and economic growth) to be weighed against the benefits of a compact urban form (i.e. reduced transport costs). An economic analysis should not in general be constrained at the outset by a proposed policy, rather policy should be based on economic (and other) analysis. This incorrect interpretation of the PDP and NPS-UD appears to have resulted in Mr. Osborne and Mr. Heath not evaluating the quantity and price of housing required for an efficient market, which is the fundamental task of an economist in a district plan review. Instead, the assumption that the PDP and NPS-UD objectives require intensification appear to be used as a basis for not considering the impact of residential land use policy on housing prices and quantity.

74. The supply and demand curve provides the economic law to evaluate residential land use policy. The law states that supply and demand can only be understood as a function of both quantity and price.

75. The NPS-UD replaced the NPS-UDC in 2020. The concept of demand has not changed significantly in the NPS-UD (e.g. s3.28 and Policy 1). The NPS-UD includes a range of additional considerations, including Objective 2 which requires consideration of "competitive land and development markets" (as below). This further supports the concept of demand in terms of price and also potentially enables consideration of market concentration issues (in which one land owner has undue control over supply in a locality).

"Objective 2: Planning decisions improve housing affordability by supporting competitive land and development markets." NPS-UD

12. SUMMARY & CONCLUSIONS

76. The Porirua City Council ("PCC") housing capacity estimates, prepared by Property Economics Ltd, have been based on the incorrect assumption that the Proposed District Plan ("PDP") and NPS-UD seek intensification as their objective. Instead, the PDP and NPS-UD require a diverse range of factors to be assessed when preparing land use policy[10]. This incorrect assumption has led to the capacity estimates, and

[10] NPS-UD: Objective 2, NPS-UD: Policy 1(a(i)), NPS-UD: Policy 1(d)

supporting analysis, not presenting any economic analysis of house prices under the PDP.

77. The NPS-UD requires that the price of housing that is supplied and demanded is estimated[11]. This has not been completed and the PDP therefore does not meet the evidential requirements of the NPS-UD.

78. The economic analysis of the housing market under the PDP can only be assessed by assessing the relationship between housing quantity and housing price, namely the supply and demand curve. This is an economic law that states as the price decreases the quantity demanded increases, and as the price increases the quantity demanded decreases. The PCC capacity estimates consider the quantity of housing however do not consider the price of housing. It is therefore not an economic analysis. In order to complete an economic analysis of a housing market for at proposed plan, in my view the following questions need to be answered (and are required by to be answered under the NPS-UD):

1. What quantity of dwellings are expected to be realised by type and price, within infill and greenfield locations?

2. What quantity of dwellings are demands by type and price?

3. Will the district plan enable houses that meets all demand, in particular the lower income households?

4. Will there be a competitive land development market enabled by the proposed plan, and in particular is there enough competition in the greenfield areas?

5. Will demand be fully met in terms of both price and quantity?

79. Mr Heath and Mr Osborne have not answered these questions.

80. Mr Heath and Mr Osborn estimate realised capacity for 6,719 Terrace Houses and Stand Alone dwellings within the Commercial Zones. These dwellings are on lots of 50-100m^2. In total, these dwellings would utilise 46 hectares of Commercial Zone land. This is the majority of the 50 hectares of Commercial Zone land under the PDP. This outcome is practically impossible as it would need to displace nearly all business activity from the Commercial Zones. It is unlikely that there is demand for these small terrace and stand alone dwellings in the Commercial Zones, given they have an average lot size of 80m^2, an average floor area of 80m^2 and an average price of $870,000. Mr Heath and Mr Osborne rely on this realised capacity (80m^2 dwellings on 80m^2 lots) in the Commercial Zones to provide for 63% of the districts future housing

[11] NPS-UD: Policy 1(a(i))

needs. This is unrealistic. If it were to eventuate (hypothetically) it would undermine the Commercial zones and the economy. In my opinion there should be no reliance on this capacity to meet the district's future housing needs, and instead the district should rely solely on the residential zones.

81. Within the Residential Zones, Mr Heath and Mr Osborne estimate only 55 dwellings (1% of total realised capacity) is expected to be realised for less than $600,000 under the PDP. However, there is demand for 5,900 dwellings for under $600,000 (54% of all demand) meaning the greenfield locations will need to provide 5,850 dwellings for under $600,000. Mr Heath and Mr Osborne's model therefore confirms that the PDP will not enable housing that is in broad terms affordable or in-line with the demand of the average resident. This outcome would result in ongoing high housing prices and rents, which Mr Heath and Mr Osborne indicate is normal or inevitable. This would have significant economic costs that would outweigh any of the benefits Mr Heath and Mr Osborne perceive to occur from intensification.

82. The modelling provided by Mr Heath and Mr Osborne confirms that infill and development housing under the PDP will not be affordable and will not the demand of the majority of the population. This will mean the district will rely almost entirely on greenfield land to meet the future housing needs of the population.

83. A total of 256 dwellings were built each year, on average, over the March 2020-2022 period. This is approximately half (51%) of the 500 dwellings demanded per annum, indicating a further 244 dwellings per annum are required to keep pace with demand.

84. Of the 256 dwellings built annually, 210 (82%) were on greenfield sites, and 46 (18%) were in infill/redevelopment sites. This shows infill/redevelopment construction has a minor role in dwelling construction, which is a typical infill/redevelopment ratio for small-medium cities. Infill/redevelopment typically only occurs to any significant extent in larger cities that have significant congestion and housing affordability issues.

85. The construction of 256 dwellings per annum falls short of demand for 500 dwellings per annum (estimated by Porirua City Council).

86. Only 46 infill/redevelopment dwellings occurred annually over the past two-year period. Given the PDP does not materially increase the potentially for infill/redevelopment when compared to the ODP (i.e. the infill/redevelopment provisions are in large part the same under both plans) this means that greenfield land will need to account for approximately 454 dwellings annually to keep pace with demand (of 500 dwellings per annum).

87. A small sample of infill/redevelopment feasibility assessments under the PDP have been undertaken. The main findings are:

- Only one infill stand alone property are commercially feasible.

- No terrace house redevelopment properties are commercially feasible.
- Two thirds of the greenfield site properties were commercially feasible for terrace house development.

88. This indicates that the infill and redevelopment properties have a low level of commercial feasibility, or that the price of these dwellings is higher than demanded. This is confirmed by the analysis of the actual builds that have occurred over the past two year, with only 46 infill and development dwelling being completed annually. This is also confirmed by the analysis completed by The Property Group in their 2019 report which evaluated the commercial feasibility of medium density housing:

89. Objective 2 of the NPS-UD requires competitive land and development markets. The Herfindahl-Hirschman index analysis is considered to be the best tool in determining the competitiveness of market, and for example is used by the Commerce Commission. The H-H index analysis has been used to determine whether the PDP meets this Objective of the NPS-UD to have competitive land and development markets. Property Economics has not addressed this key objective in their reporting.

90. The H-H index analysis indicates that the Porirua City greenfield market would be 'moderately concentrated' under the PDP, with a value of 2,060. By 2024, H-H index analysis indicates the market will be highly concentrated once the supply from small developments is exhausted.

91. When accounting for land banking, the H-H index has a value of 4,060, indicating that the greenfield market is 'highly concentrated' under the PDP. The H-H index continues to increase to 6,150 in 2025 to 10,000 in 2029.

92. The H-H index analysis supports the conclusion that the PDP does not have sufficient residential land to enable affordable housing or a sufficient quantity of dwellings to meet demand. This will result in significant economic and social costs that become progressively worse over time. Most notably, the average house price would exceed $900,000 or $1 million within a few years and population growth will slow or start to decline.

93. In order for PDP to meet housing demand for 500 dwellings per annum over the next decade, there would need to be a decrease in price. The average price of a house in Porirua would need to drop from $963,000 to (for example) $500,000 in order to meet demand. It should be noted that the 'price elasticity of demand' for housing in Porirua would need to be determined in order to estimate the approximate price of housing that would be required to meet demand. As context, the average price of dwellings demanded in Porirua is estimated at $560,000 (accounting for income and the ability for households to raise a mortgage).

94. The PDP does not meet the requirements of the NPS-UD which requires the demand for housing, by type and price, is met[12].

95. In conclusion, the PDP does not have sufficient residential land to enable affordable housing or a sufficient quantity of dwellings to meet demand. This will result in significant economic and social costs that become progressively worse over time. Most notably, the average house price would exceed $900,000 or $1 million within a few years and population growth will slow or start to decline. The PDP does not meet the requirements of the NPS-UD which requires the demand for housing, by type and price, is met.

Name: Adam Thompson

Date: 20 June 2022

[12]NPS-UD: Policy 1(a(i)

13. APPENDIX 1 –COMMERCIAL FEASIBILITY TABLES

Figure 15: Infill Stand Alone Small Unit Development Feasibilities (General Residential Zone)

			Stand Alone					
Site Details	**Site ID**	**%**	**1**	**2**	**3**	**4**	**5**	**6**
	Suburb		Titahi Bay	Paremata	Camborne	Aotea	Whitby	Aotea
	Zone		Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.
	Minimum Lot Size		400	400	400	400	400	400
	Existing Floor Area		94	130	250	209	350	188
	Land Area (m^2)		1,179	884	843	813	1,041	944
	Site Purchase Price		$1,025,000	$1,013,000	$1,211,000	$1,125,000	$1,535,000	$1,200,000
	Estimated Site Land Value		$785,000	$743,000	$841,000	$655,000	$890,000	$670,000
Effective Site Area	Site Land Area (m^2)		1,179	884	843	813	1,041	944
	Effective Area (m^2)		**1,179**	**884**	**843**	**813**	**1,041**	**944**
Development Scenario	Lot Size (m^2)		400	400	400	400	400	400
	Dwelling Size (m^2)		140	140	140	140	140	140
	Lot Value		$445,000	$560,000	$623,000	$543,000	$611,000	$543,000
	New Property Value (Land + Dwelling)		$889,000	$1,119,000	$1,245,000	$1,086,000	$1,221,000	$1,086,000
Existing Dwelling Post Subdivision	Lot Size (m^2)		779	484	443	413	641	544
	Dwelling Size (m^2)		94	130	250	209	350	188
	Lot Value		$519,000	$407,000	$442,000	$333,000	$548,000	$386,000
	New Property Value (Land + Dwelling)		$759,000	$677,000	$812,000	$803,000	$1,193,000	$916,000
	Lots Yielded		2	2	2	2	2	2
	Additional Lots		**1**	**1**	**1**	**1**	**1**	**1**
Subdivision Costs	Land Value per Lot		$512,500	$506,500	$605,500	$562,500	$767,500	$600,000
	Civil Works		$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
	Civil Works Contingency	10%	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Development Contribution		$18,600	$25,500	$36,100	$40,200	$34,700	$38,500
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$4,500	$4,500	$4,500	$4,500	$4,500	$4,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost (Per Lot)		$588,600	$589,500	$699,100	$660,200	$859,700	$696,000
	Total Costs		**$588,600**	**$589,500**	**$699,100**	**$660,200**	**$859,700**	**$696,000**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($2,750/$m^2$)		$385,000	$385,000	$385,000	$385,000	$385,000	$385,000
	Rates and Insurance	1%	$10,250	$10,130	$12,110	$11,250	$15,350	$12,000
	Total Cost (Per Dwelling)		$401,250	$401,130	$403,110	$402,250	$406,350	$403,000
	Total Costs		**$411,500**	**$411,260**	**$415,220**	**$413,500**	**$421,700**	**$415,000**
Holding Costs	Interest (18 months)	6%	**$90,800**	**$90,400**	**$103,200**	**$98,200**	**$122,900**	**$102,700**
Total Costs			**$1,603,400**	**$1,597,660**	**$1,823,020**	**$1,734,400**	**$2,171,800**	**$1,813,700**
Realisation	Gross Revenue from Sales		$1,648,000	$1,796,000	$2,057,000	$1,889,000	$2,414,000	$2,002,000
	Less Sales Agent Costs	3%	$49,440	$53,880	$61,710	$56,670	$72,420	$60,060
	Net Revenue from Sales		-$4,840	$144,460	$172,270	$97,930	$169,780	$128,240
	GST	15%	-$600	$18,800	$22,500	$12,800	$22,100	$16,700
	Profit		**-$4,240**	**$125,660**	**$149,770**	**$85,130**	**$147,680**	**$111,540**
	% Profit		0%	8%	8%	5%	7%	6%

Source: Urban Economics, Corelogic

Figure 16: Infill Stand Alone Medium Unit Development Feasibilities (General Residential Zone)

			Stand Alone					
Site Details	**Site ID**	**%**	**1**	**2**	**3**	**4**	**5**	**6**
	Suburb		Titahi Bay	Paremata	Camborne	Aotea	Whitby	Aotea
	Zone		Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.
	Minimum Lot Size		400	400	400	400	400	400
	Existing Floor Area		94	130	250	209	350	188
	Land Area (m^2)		1,179	884	843	813	1,041	944
	Site Purchase Price		$1,025,000	$1,013,000	$1,211,000	$1,125,000	$1,535,000	$1,200,000
	Estimated Site Land Value		$785,000	$743,000	$841,000	$655,000	$890,000	$670,000
Effective Site Area	Site Land Area (m^2)		1,179	884	843	813	1,041	944
	Effective Area (m^2)		**1,179**	**884**	**843**	**813**	**1,041**	**944**
Development Scenario	Lot Size (m^2)		400	400	400	400	400	400
	Dwelling Size (m^2)		180	180	180	180	180	180
	Lot Value		$512,000	$644,000	$716,000	$625,000	$703,000	$625,000
	New Property Value (Land + Dwelling)		$1,023,000	$1,288,000	$1,432,000	$1,250,000	$1,405,000	$1,250,000
Existing Dwelling Post Subdivision	Lot Size (m^2)		779	484	443	413	641	544
	Dwelling Size (m^2)		94	130	250	209	350	188
	Lot Value		$519,000	$407,000	$442,000	$333,000	$548,000	$386,000
	New Property Value (Land + Dwelling)		$759,000	$677,000	$812,000	$803,000	$1,193,000	$916,000
	Lots Yielded		2	2	2	2	2	2
	Additional Lots		**1**	**1**	**1**	**1**	**1**	**1**
Subdivision Costs	Land Value per Lot		$512,500	$506,500	$605,500	$562,500	$767,500	$600,000
	Civil Works		$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
	Civil Works Contingency	10%	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Development Contribution		$18,600	$25,500	$36,100	$40,200	$34,700	$38,500
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$4,500	$4,500	$4,500	$4,500	$4,500	$4,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost (Per Lot)		$588,600	$589,500	$699,100	$660,200	$859,700	$696,000
	Total Costs		**$588,600**	**$589,500**	**$699,100**	**$660,200**	**$859,700**	**$696,000**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($2,500/$m^2$)		$450,000	$450,000	$450,000	$450,000	$450,000	$450,000
	Rates and Insurance	1%	$10,250	$10,130	$12,110	$11,250	$15,350	$12,000
	Total Cost (Per Dwelling)		$466,250	$466,130	$468,110	$467,250	$471,350	$468,000
	Total Costs		**$476,500**	**$476,260**	**$480,220**	**$478,500**	**$486,700**	**$480,000**
Holding Costs	Interest (18 months)	6%	**$94,700**	**$94,300**	**$107,100**	**$102,100**	**$126,800**	**$106,600**
Total Costs			**$1,672,300**	**$1,666,560**	**$1,891,920**	**$1,803,300**	**$2,240,700**	**$1,882,600**
Realisation	Gross Revenue from Sales		$1,782,000	$1,965,000	$2,244,000	$2,053,000	$2,598,000	$2,166,000
	Less Sales Agent Costs	3%	$53,460	$58,950	$67,320	$61,590	$77,940	$64,980
	Net Revenue from Sales		$56,240	$239,490	$284,760	$188,110	$279,360	$218,420
	GST	15%	$7,300	$31,200	$37,100	$24,500	$36,400	$28,500
	Profit		**$48,940**	**$208,290**	**$247,660**	**$163,610**	**$242,960**	**$189,920**
	% Profit		**3%**	**12%**	**13%**	**9%**	**11%**	**10%**

Source: Urban Economics, Corelogic

Figure 17: Infill Stand Alone Large Unit Development Feasibilities (General Residential Zone)

			Stand Alone					
Site Details	Site ID	%	1	2	3	4	5	6
	Suburb		Titahi Bay	Paremata	Camborne	Aotea	Whitby	Aotea
	Zone		Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.
	Minimum Lot Size		400	400	400	400	400	400
	Existing Floor Area		94	130	250	209	350	188
	Land Area (m^2)		1,179	884	843	813	1,041	944
	Site Purchase Price		$1,025,000	$1,013,000	$1,211,000	$1,125,000	$1,535,000	$1,200,000
	Estimated Site Land Value		$785,000	$743,000	$841,000	$655,000	$890,000	$670,000
Effective Site Area	Site Land Area (m^2)		1,179	884	843	813	1,041	944
	Effective Area (m^2)		**1,179**	**884**	**843**	**813**	**1,041**	**944**
Development Scenario	Lot Size (m^2)		400	400	400	400	400	400
	Dwelling Size (m^2)		220	220	220	220	220	220
	Lot Value		$579,000	$729,000	$810,000	$707,000	$795,000	$707,000
	New Property Value (Land + Dwelling)		$1,157,000	$1,457,000	$1,620,000	$1,413,000	$1,589,000	$1,413,000
Existing Dwelling Post Subdivision	Lot Size (m^2)		779	484	443	413	641	544
	Dwelling Size (m^2)		94	130	250	209	350	188
	Lot Value		$519,000	$407,000	$442,000	$333,000	$548,000	$386,000
	New Property Value (Land + Dwelling)		$759,000	$677,000	$812,000	$803,000	$1,193,000	$916,000
	Lots Yielded		2	2	2	2	2	2
	Additional Lots		**1**	**1**	**1**	**1**	**1**	**1**
Subdivision Costs	Land Value per Lot		$512,500	$506,500	$605,500	$562,500	$767,500	$600,000
	Civil Works		$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
	Civil Works Contingency	10%	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Development Contribution		$18,600	$25,500	$36,100	$40,200	$34,700	$38,500
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$4,500	$4,500	$4,500	$4,500	$4,500	$4,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost (Per Lot)		$588,600	$589,500	$699,100	$660,200	$859,700	$696,000
	Total Costs		**$588,600**	**$589,500**	**$699,100**	**$660,200**	**$859,700**	**$696,000**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($2,250/$m^2$)		$495,000	$495,000	$495,000	$495,000	$495,000	$495,000
	Rates and Insurance	1%	$10,250	$10,130	$12,110	$11,250	$15,350	$12,000
	Total Cost (Per Dwelling)		$511,250	$511,130	$513,110	$512,250	$516,350	$513,000
	Total Costs		**$521,500**	**$521,260**	**$525,220**	**$523,500**	**$531,700**	**$525,000**
Holding Costs	Interest (18 months)	6%	**$97,400**	**$97,000**	**$109,800**	**$104,800**	**$129,500**	**$109,300**
Total Costs			**$1,720,000**	**$1,714,260**	**$1,939,620**	**$1,851,000**	**$2,288,400**	**$1,930,300**
Realisation	Gross Revenue from Sales		$1,916,000	$2,134,000	$2,432,000	$2,216,000	$2,782,000	$2,329,000
	Less Sales Agent Costs	3%	$57,480	$64,020	$72,960	$66,480	$83,460	$69,870
	Net Revenue from Sales		$138,520	$355,720	$419,420	$298,520	$410,140	$328,830
	GST	15%	$18,100	$46,400	$54,700	$38,900	$53,500	$42,900
	Profit		**$120,420**	**$309,320**	**$364,720**	**$259,620**	**$356,640**	**$285,930**
	% Profit		**7%**	**18%**	**19%**	**14%**	**16%**	**15%**

Source: Urban Economics, Corelogic

Figure 19: Infill Stand Alone Small Unit Development Feasibilities (Medium Density Residential Zone)

			Stand Alone					
Site Details	**Site ID**	**%**	**7**	**8**	**9**	**10**	**11**	**12**
	Suburb		Waitangirua	Cannons Creek	Takapuwahia	Kenepuru	Ranui	Ascot Park
	Zone		Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.
	Minimum Lot Size		300	300	300	300	300	300
	Existing Floor Area		100	130	160	90	190	108
	Land Area (m^2)		974	913	981	824	1,310	889
	Site Purchase Price		$749,000	$695,000	$750,000	$932,500	$980,000	$830,000
	Estimated Site Land Value		$549,000	$425,000	$545,000	$807,500	$605,000	$560,000
Effective Site Area	Site Land Area (m^2)		974	913	981	824	1,310	889
	Effective Area (m^2)		**974**	**913**	**981**	**824**	**1,310**	**889**
Development Scenario	Lot Size (m^2)		300	300	300	300	300	300
	Dwelling Size (m^2)		140	140	140	140	140	140
	Lot Value		$366,000	$340,000	$393,000	$510,000	$429,000	$413,000
	New Property Value (Land + Dwelling)		$732,000	$680,000	$785,000	$1,020,000	$858,000	$826,000
Existing Dwelling Post Subdivision	Lot Size (m^2)		374	313	381	524	410	589
	Dwelling Size (m^2)		100	130	160	90	190	108
	Lot Value		$211,000	$146,000	$212,000	$514,000	$189,000	$371,000
	New Property Value (Land + Dwelling)		$411,000	$416,000	$417,000	$639,000	$564,000	$641,000
	Lots Yielded		3	3	3	2	4	2
	Additional Lots		**2**	**2**	**2**	**1**	**3**	**1**
Subdivision Costs	Land Value per Lot		$249,667	$231,667	$250,000	$466,250	$245,000	$415,000
	Civil Works		$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
	Civil Works Contingency	10%	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Development Contribution		$26,400	$26,400	$22,900	$22,900	$23,800	$23,800
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$4,500	$4,500	$4,500	$4,500	$4,500	$4,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost (Per Lot)		$333,567	$315,567	$330,400	$546,650	$326,300	$496,300
	Total Costs		**$667,130**	**$631,130**	**$660,800**	**$546,650**	**$978,900**	**$496,300**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($2,750/$m^2$)		$385,000	$385,000	$385,000	$385,000	$385,000	$385,000
	Rates and Insurance	2%	$14,980	$13,900	$15,000	$18,650	$19,600	$16,600
	Total Cost (Per Dwelling)		$405,980	$404,900	$406,000	$409,650	$410,600	$407,600
	Total Costs		**$826,940**	**$823,700**	**$827,000**	**$428,300**	**$1,251,400**	**$424,200**
Holding Costs	Interest (18 months)	6%	**$104,600**	**$101,200**	**$104,300**	**$86,500**	**$148,500**	**$80,100**
Total Costs			**$1,848,340**	**$1,787,700**	**$1,842,100**	**$1,527,700**	**$2,623,800**	**$1,415,600**
Realisation	Gross Revenue from Sales		$1,875,000	$1,776,000	$1,987,000	$1,659,000	$3,138,000	$1,467,000
	Less Sales Agent Costs	3%	$56,250	$53,280	$59,610	$49,770	$94,140	$44,010
	Net Revenue from Sales		-$29,590	-$64,980	$85,290	$81,530	$420,060	$7,390
	GST	15%	-$3,900	-$8,500	$11,100	$10,600	$54,800	$1,000
	Profit		**-$25,690**	**-$56,480**	**$74,190**	**$70,930**	**$365,260**	**$6,390**
	% Profit		**-1%**	**-3%**	**4%**	**5%**	**14%**	**0%**

Source: Urban Economics, Corelogic

Figure20: Infill Stand Alone Medium Unit Development Feasibilities (Medium Density Residential Zone)

			Stand Alone					
Site Details	**Site ID**	**%**	**7**	**8**	**9**	**10**	**11**	**12**
	Suburb		Waitangirua	Cannons Creek	Takapuwahia	Kenepuru	Ranui	Ascot Park
	Zone		Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.
	Minimum Lot Size		300	300	300	300	300	300
	Existing Floor Area		100	130	160	90	190	108
	Land Area (m^2)		974	913	981	824	1,310	889
	Site Purchase Price		$749,000	$695,000	$750,000	$932,500	$980,000	$830,000
	Estimated Site Land Value		$549,000	$425,000	$545,000	$807,500	$605,000	$560,000
Effective Site Area	Site Land Area (m^2)		974	913	981	824	1,310	889
	Effective Area (m^2)		**974**	**913**	**981**	**824**	**1,310**	**889**
Development Scenario	Lot Size (m^2)		300	300	300	300	300	300
	Dwelling Size (m^2)		180	180	180	180	180	180
	Lot Value		$422,000	$391,000	$452,000	$587,000	$494,000	$476,000
	New Property Value (Land + Dwelling)		$843,000	$782,000	$903,000	$1,173,000	$987,000	$951,000
Existing Dwelling Post Subdivision	Lot Size (m^2)		374	313	381	524	410	589
	Dwelling Size (m^2)		100	130	160	90	190	108
	Lot Value		$211,000	$146,000	$212,000	$514,000	$189,000	$371,000
	New Property Value (Land + Dwelling)		$411,000	$416,000	$417,000	$639,000	$564,000	$641,000
	Lots Yielded		3	3	3	2	4	2
	Additional Lots		**2**	**2**	**2**	**1**	**3**	**1**
Subdivision Costs	Land Value per Lot		$249,667	$231,667	$250,000	$466,250	$245,000	$415,000
	Civil Works		$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
	Civil Works Contingency	10%	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Development Contribution		$26,400	$26,400	$22,900	$22,900	$23,800	$23,800
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$4,500	$4,500	$4,500	$4,500	$4,500	$4,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost (Per Lot)		$333,567	$315,567	$330,400	$546,650	$326,300	$496,300
	Total Costs		**$667,130**	**$631,130**	**$660,800**	**$546,650**	**$978,900**	**$496,300**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($2,500/$m^2$)		$450,000	$450,000	$450,000	$450,000	$450,000	$450,000
	Rates and Insurance	2%	$14,980	$13,900	$15,000	$18,650	$19,600	$16,600
	Total Cost (Per Dwelling)		$470,980	$469,900	$471,000	$474,650	$475,600	$472,600
	Total Costs		**$956,940**	**$953,700**	**$957,000**	**$493,300**	**$1,446,400**	**$489,200**
Holding Costs	Interest (18 months)	6%	**$112,400**	**$109,000**	**$112,100**	**$90,400**	**$160,200**	**$84,000**
Total Costs			**$1,986,140**	**$1,925,500**	**$1,979,900**	**$1,596,600**	**$2,830,500**	**$1,484,500**
Realisation	Gross Revenue from Sales		$2,097,000	$1,980,000	$2,223,000	$1,812,000	$3,525,000	$1,592,000
	Less Sales Agent Costs	3%	$62,910	$59,400	$66,690	$54,360	$105,750	$47,760
	Net Revenue from Sales		$47,950	-$4,900	$176,410	$161,040	$588,750	$59,740
	GST	15%	$6,300	-$600	$23,000	$21,000	$76,800	$7,800
	Profit		**$41,650**	**-$4,300**	**$153,410**	**$140,040**	**$511,950**	**$51,940**
	% Profit		2%	0%	8%	9%	18%	3%

Source: Urban Economics, Corelogic

Figure 18: Infill Stand Alone Large Unit Development Feasibilities (Medium Density Residential Zone)

			Stand Alone					
Site Details	**Site ID**	**%**	**7**	**8**	**9**	**10**	**11**	**12**
	Suburb		Waitangirua	Cannons Creek	Takapuwahia	Kenepuru	Ranui	Ascot Park
	Zone		Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.
	Minimum Lot Size		300	300	300	300	300	300
	Existing Floor Area		100	130	160	90	190	108
	Land Area (m^2)		974	913	981	824	1,310	889
	Site Purchase Price		$749,000	$695,000	$750,000	$932,500	$980,000	$830,000
	Estimated Site Land Value		$549,000	$425,000	$545,000	$807,500	$605,000	$560,000
Effective Site Area	Site Land Area (m^2)		974	913	981	824	1,310	889
	Effective Area (m^2)		**974**	**913**	**981**	**824**	**1,310**	**889**
Development Scenario	Lot Size (m^2)		300	300	300	300	300	300
	Dwelling Size (m^2)		220	220	220	220	220	220
	Lot Value		$477,000	$443,000	$511,000	$664,000	$558,000	$538,000
	New Property Value (Land + Dwelling)		$953,000	$885,000	$1,021,000	$1,327,000	$1,116,000	$1,075,000
Existing Dwelling Post Subdivision	Lot Size (m^2)		374	313	381	524	410	589
	Dwelling Size (m^2)		100	130	160	90	190	108
	Lot Value		$211,000	$146,000	$212,000	$514,000	$189,000	$371,000
	New Property Value (Land + Dwelling)		$411,000	$416,000	$417,000	$639,000	$564,000	$641,000
	Lots Yielded		3	3	3	2	4	2
	Additional Lots		**2**	**2**	**2**	**1**	**3**	**1**
Subdivision Costs	Land Value per Lot		$249,667	$231,667	$250,000	$466,250	$245,000	$415,000
	Civil Works		$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
	Civil Works Contingency	10%	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Development Contribution		$26,400	$26,400	$22,900	$22,900	$23,800	$23,800
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$4,500	$4,500	$4,500	$4,500	$4,500	$4,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost (Per Lot)		$333,567	$315,567	$330,400	$546,650	$326,300	$496,300
	Total Costs		**$667,130**	**$631,130**	**$660,800**	**$546,650**	**$978,900**	**$496,300**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($2,250/$m^2$)		$495,000	$495,000	$495,000	$495,000	$495,000	$495,000
	Rates and Insurance	2%	$14,980	$13,900	$15,000	$18,650	$19,600	$16,600
	Total Cost (Per Dwelling)		$515,980	$514,900	$516,000	$519,650	$520,600	$517,600
	Total Costs		**$1,046,940**	**$1,043,700**	**$1,047,000**	**$538,300**	**$1,581,400**	**$534,200**
Holding Costs	Interest (18 months)	6%	**$117,800**	**$114,400**	**$117,500**	**$93,100**	**$168,300**	**$86,700**
Total Costs			**$2,081,540**	**$2,020,900**	**$2,075,300**	**$1,644,300**	**$2,973,600**	**$1,532,200**
Realisation	Gross Revenue from Sales		$2,317,000	$2,186,000	$2,459,000	$1,966,000	$3,912,000	$1,716,000
	Less Sales Agent Costs	3%	$69,510	$65,580	$73,770	$58,980	$117,360	$51,480
	Net Revenue from Sales		$165,950	$99,520	$309,930	$262,720	$821,040	$132,320
	GST	15%	$21,600	$13,000	$40,400	$34,300	$107,100	$17,300
	Profit		**$144,350**	**$86,520**	**$269,530**	**$228,420**	**$713,940**	**$115,020**
	% Profit		**7%**	**4%**	**13%**	**14%**	**24%**	**8%**

Source: Urban Economics, Corelogic

Figure 19: Infill Terrace House Small Unit Development Feasibilities (General Residential Zone)

			Terrace					
Site Details	**Site ID**	**%**	**1**	**2**	**3**	**4**	**5**	**6**
	Suburb		Titahi Bay	Paremata	Camborne	Aotea	Whitby	Aotea
	Zone		Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.
	Minimum Lot Size		400	400	400	400	400	400
	Existing Floor Area		94	130	250	209	350	188
	Land Area (m^2)		1,179	884	843	813	1,041	944
	Site Purchase Price		$1,025,000	$1,013,000	$1,211,000	$1,125,000	$1,535,000	$1,200,000
Effective Site Area	Site Land Area (m^2)		1,179	884	843	813	1,041	944
	Less Infrastructure and Amenities	15%	180	130	130	120	160	140
	Effective Area (m^2)		**999**	**754**	**713**	**693**	**881**	**804**
Development Scenario	New Lot Size (m^2)		150	150	150	150	150	150
	Dwelling Size (m^2)		80	80	80	80	80	80
	Lot Value		$276,000	$347,000	$386,000	$337,000	$378,000	$337,000
	Property Value (Land + Dwelling)		$551,000	$693,000	$771,000	$673,000	$756,000	$673,000
	Total Lots After Subdivision		**6**	**5**	**4**	**4**	**5**	**5**
Subdivision Costs	Land Value per Lot		$170,833	$202,600	$302,750	$281,250	$307,000	$240,000
	Demolition Costs ($100/$m^2$)		$9,400	$13,000	$25,000	$20,900	$35,000	$18,800
	Civil Works		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
	Civil Works Contingency	10%	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
	Development Contribution		$18,600	$25,500	$36,100	$40,200	$34,700	$38,500
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost Per Lot		$248,833	$291,100	$413,850	$392,350	$426,700	$347,300
	Total Costs		**$1,493,000**	**$1,455,500**	**$1,655,400**	**$1,569,400**	**$2,133,500**	**$1,736,500**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($3,250/$m^2$)		$260,000	$260,000	$260,000	$260,000	$260,000	$260,000
	Rates and Insurance	1%	$10,300	$10,100	$12,100	$11,300	$15,400	$12,000
	Total Cost Per Dwelling		$276,300	$276,100	$278,100	$277,300	$281,400	$278,000
	Total Costs		**$1,657,800**	**$1,380,500**	**$1,112,400**	**$1,109,200**	**$1,407,000**	**$1,390,000**
Holding Costs	Interest (18 months)	6%	**$189,000**	**$170,200**	**$166,100**	**$160,700**	**$212,400**	**$187,600**
Total Costs			**$3,339,800**	**$3,006,200**	**$2,933,900**	**$2,839,300**	**$3,752,900**	**$3,314,100**
Realisation	Gross Revenue from Sales		$3,306,000	$3,465,000	$3,084,000	$2,692,000	$3,780,000	$3,365,000
	Less Sales Agent Costs	3%	$99,180	$103,950	$92,520	$80,760	$113,400	$100,950
	Net Revenue from Sales		-$132,980	$354,850	$57,580	-$228,060	-$86,300	-$50,050
	GST	15%	-$17,300	$46,300	$7,500	-$29,700	-$11,300	-$6,500
	Profit		**-$115,680**	**$308,550**	**$50,080**	**-$198,360**	**-$75,000**	**-$43,550**
	% Profit		**-3%**	**10%**	**2%**	**-7%**	**-2%**	**-1%**

Source: Urban Economics, Corelogic

Figure 20: Infill Terrace House Medium Unit Development Feasibilities (General Residential Zone)

			Terrace					
Site Details	**Site ID**	**%**	**1**	**2**	**3**	**4**	**5**	**6**
	Suburb		Titahi Bay	Paremata	Camborne	Aotea	Whitby	Aotea
	Zone		Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.
	Minimum Lot Size		400	400	400	400	400	400
	Existing Floor Area		94	130	250	209	350	188
	Land Area (m^2)		1,179	884	843	813	1,041	944
	Site Purchase Price		$1,025,000	$1,013,000	$1,211,000	$1,125,000	$1,535,000	$1,200,000
Effective Site Area	Site Land Area (m^2)		1,179	884	843	813	1,041	944
	Less Infrastructure and Amenities	15%	180	130	130	120	160	140
	Effective Area (m^2)		**999**	**754**	**713**	**693**	**881**	**804**
Development Scenario	New Lot Size (m^2)		150	150	150	150	150	150
	Dwelling Size (m^2)		120	120	120	120	120	120
	Lot Value		$329,000	$414,000	$461,000	$402,000	$452,000	$402,000
	Property Value (Land + Dwelling)		$658,000	$828,000	$921,000	$803,000	$903,000	$803,000
	Total Lots After Subdivision		**6**	**5**	**4**	**4**	**5**	**5**
Subdivision Costs	Land Value per Lot		$170,833	$202,600	$302,750	$281,250	$307,000	$240,000
	Demolition Costs ($100/$m^2$)		$9,400	$13,000	$25,000	$20,900	$35,000	$18,800
	Civil Works		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
	Civil Works Contingency	10%	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
	Development Contribution		$18,600	$25,500	$36,100	$40,200	$34,700	$38,500
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost Per Lot		$248,833	$291,100	$413,850	$392,350	$426,700	$347,300
	Total Costs		**$1,493,000**	**$1,455,500**	**$1,655,400**	**$1,569,400**	**$2,133,500**	**$1,736,500**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($3,000/$m^2$)		$360,000	$360,000	$360,000	$360,000	$360,000	$360,000
	Rates and Insurance	1%	$10,300	$10,100	$12,100	$11,300	$15,400	$12,000
	Total Cost Per Dwelling		$376,300	$376,100	$378,100	$377,300	$381,400	$378,000
	Total Costs		**$2,257,800**	**$1,880,500**	**$1,512,400**	**$1,509,200**	**$1,907,000**	**$1,890,000**
Holding Costs	Interest (18 months)	6%	**$225,000**	**$200,200**	**$190,100**	**$184,700**	**$242,400**	**$217,600**
Total Costs			**$3,975,800**	**$3,536,200**	**$3,357,900**	**$3,263,300**	**$4,282,900**	**$3,844,100**
Realisation	Gross Revenue from Sales		$3,948,000	$4,140,000	$3,684,000	$3,212,000	$4,515,000	$4,015,000
	Less Sales Agent Costs	3%	$118,440	$124,200	$110,520	$96,360	$135,450	$120,450
	Net Revenue from Sales		-$146,240	$479,600	$215,580	-$147,660	$96,650	$50,450
	GST	15%	-$19,100	$62,600	$28,100	-$19,300	$12,600	$6,600
	Profit		**-$127,140**	**$417,000**	**$187,480**	**-$128,360**	**$84,050**	**$43,850**
	% Profit		**-3%**	**12%**	**6%**	**-4%**	**2%**	**1%**

Source: Urban Economics, Corelogic

Figure 21: Infill Terrace House Large Unit Development Feasibilities (General Residential Zone)

			Terrace					
Site Details	**Site ID**	**%**	1	2	3	4	5	6
	Suburb		Titahi Bay	Paremata	Camborne	Aotea	Whitby	Aotea
	Zone		Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.
	Minimum Lot Size		400	400	400	400	400	400
	Existing Floor Area		94	130	250	209	350	188
	Land Area (m^2)		1,179	884	843	813	1,041	944
	Site Purchase Price		$1,025,000	$1,013,000	$1,211,000	$1,125,000	$1,535,000	$1,200,000
Effective Site Area	Site Land Area (m^2)		1,179	884	843	813	1,041	944
	Less Infrastructure and Amenities	15%	180	130	130	120	160	140
	Effective Area (m^2)		**999**	**754**	**713**	**693**	**881**	**804**
Development Scenario	New Lot Size (m^2)		150	150	150	150	150	150
	Dwelling Size (m^2)		160	160	160	160	160	160
	Lot Value		$383,000	$482,000	$536,000	$467,000	$525,000	$467,000
	Property Value (Land + Dwelling)		$765,000	$963,000	$1,071,000	$934,000	$1,050,000	$934,000
	Total Lots After Subdivision		**6**	**5**	**4**	**4**	**5**	**5**
Subdivision Costs	Land Value per Lot		$170,833	$202,600	$302,750	$281,250	$307,000	$240,000
	Demolition Costs ($100/$m^2$)		$9,400	$13,000	$25,000	$20,900	$35,000	$18,800
	Civil Works		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
	Civil Works Contingency	10%	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
	Development Contribution		$18,600	$25,500	$36,100	$40,200	$34,700	$38,500
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost Per Lot		$248,833	$291,100	$413,850	$392,350	$426,700	$347,300
	Total Costs		**$1,493,000**	**$1,455,500**	**$1,655,400**	**$1,569,400**	**$2,133,500**	**$1,736,500**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($2,750/$m^2$)		$440,000	$440,000	$440,000	$440,000	$440,000	$440,000
	Rates and Insurance	1%	$10,300	$10,100	$12,100	$11,300	$15,400	$12,000
	Total Cost Per Dwelling		$456,300	$456,100	$458,100	$457,300	$461,400	$458,000
	Total Costs		**$2,737,800**	**$2,280,500**	**$1,832,400**	**$1,829,200**	**$2,307,000**	**$2,290,000**
Holding Costs	Interest (18 months)	6%	**$253,800**	**$224,200**	**$209,300**	**$203,900**	**$266,400**	**$241,600**
Total Costs			**$4,484,600**	**$3,960,200**	**$3,697,100**	**$3,602,500**	**$4,706,900**	**$4,268,100**
Realisation	Gross Revenue from Sales		$4,590,000	$4,815,000	$4,284,000	$3,736,000	$5,250,000	$4,670,000
	Less Sales Agent Costs	3%	$137,700	$144,450	$128,520	$112,080	$157,500	$140,100
	Net Revenue from Sales		-$32,300	$710,350	$458,380	$21,420	$385,600	$261,800
	GST	15%	-$4,200	$92,700	$59,800	$2,800	$50,300	$34,100
	Profit		**-$28,100**	**$617,650**	**$398,580**	**$18,620**	**$335,300**	**$227,700**
	% Profit		**-1%**	**16%**	**11%**	**1%**	**7%**	**5%**

Source: Urban Economics, Corelogic

Figure 22: Infill Terrace House Small Unit Development Feasibilities (Medium Density Residential Zone)

			Terrace					
Site Details	**Site ID**	**%**	**7**	**8**	**9**	**10**	**11**	**12**
	Suburb		Waitangirua	Cannons Creek	Takapuwahia	Kenepuru	Ranui	Ascot Park
	Zone		Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.
	Minimum Lot Size		300	300	300	300	300	300
	Existing Floor Area		100	130	160	90	190	108
	Land Area (m^2)		974	913	981	824	1,310	889
	Site Purchase Price		$749,000	$695,000	$750,000	$932,500	$980,000	$830,000
Effective Site Area	Site Land Area (m^2)		974	913	981	824	1,310	889
	Less Infrastructure and Amenities	15%	150	140	150	120	200	130
	Effective Area (m^2)		**824**	**773**	**831**	**704**	**1,110**	**759**
Development Scenario	New Lot Size (m^2)		100	100	100	100	100	100
	Dwelling Size (m^2)		80	80	80	80	80	80
	Lot Value		$227,000	$211,000	$243,000	$316,000	$266,000	$256,000
	Property Value (Land + Dwelling)		$453,000	$421,000	$486,000	$631,000	$531,000	$512,000
	Total Lots After Subdivision		**8**	**7**	**8**	**7**	**11**	**7**
Subdivision Costs	Land Value per Lot		$93,625	$99,286	$93,750	$133,214	$89,091	$118,571
	Demolition Costs ($100/$m^2$)		$10,000	$13,000	$16,000	$9,000	$19,000	$10,800
	Civil Works		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
	Civil Works Contingency	10%	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
	Development Contribution		$26,400	$26,400	$22,900	$22,900	$23,800	$23,800
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost Per Lot		$180,025	$188,686	$182,650	$215,114	$181,891	$203,171
	Total Costs		**$1,440,200**	**$1,320,800**	**$1,461,200**	**$1,505,800**	**$2,000,800**	**$1,422,200**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($3,250/$m^2$)		$260,000	$260,000	$260,000	$260,000	$260,000	$260,000
	Rates and Insurance	2%	$15,000	$13,900	$15,000	$18,700	$19,600	$16,600
	Total Cost Per Dwelling		$281,000	$279,900	$281,000	$284,700	$285,600	$282,600
	Total Costs		**$2,248,000**	**$1,959,300**	**$2,248,000**	**$1,992,900**	**$3,141,600**	**$1,978,200**
Holding Costs	Interest (18 months)	6%	**$221,300**	**$196,800**	**$222,600**	**$209,900**	**$308,500**	**$204,000**
Total Costs			**$3,909,500**	**$3,476,900**	**$3,931,800**	**$3,708,600**	**$5,450,900**	**$3,604,400**
Realisation	Gross Revenue from Sales		$3,624,000	$2,947,000	$3,888,000	$4,417,000	$5,841,000	$3,584,000
	Less Sales Agent Costs	3%	$108,720	$88,410	$116,640	$132,510	$175,230	$107,520
	Net Revenue from Sales		-$394,220	-$618,310	-$160,440	$575,890	$214,870	-$127,920
	GST	15%	-$51,400	-$80,600	-$20,900	$75,100	$28,000	-$16,700
	Profit		**-$342,820**	**-$537,710**	**-$139,540**	**$500,790**	**$186,870**	**-$111,220**
	% Profit		**-9%**	**-15%**	**-4%**	**14%**	**3%**	**-3%**

Source: Urban Economics, Corelogic

Figure 23: Infill Terrace House Medium Unit Development Feasibilities (Medium Density Residential Zone)

			Terrace					
Site Details	**Site ID**	**%**	**7**	**8**	**9**	**10**	**11**	**12**
	Suburb		Waitangirua	Cannons Creek	Takapuwahia	Kenepuru	Ranui	Ascot Park
	Zone		Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.
	Minimum Lot Size		300	300	300	300	300	300
	Existing Floor Area		100	130	160	90	190	108
	Land Area (m^2)		974	913	981	824	1,310	889
	Site Purchase Price		$749,000	$695,000	$750,000	$932,500	$980,000	$830,000
Effective Site Area	Site Land Area (m^2)		974	913	981	824	1,310	889
	Less Infrastructure and Amenities	15%	150	140	150	120	200	130
	Effective Area (m^2)		**824**	**773**	**831**	**704**	**1,110**	**759**
Development Scenario	New Lot Size (m^2)		100	100	100	100	100	100
	Dwelling Size (m^2)		120	120	120	120	120	120
	Lot Value		$271,000	$252,000	$290,000	$377,000	$318,000	$306,000
	Property Value (Land + Dwelling)		$542,000	$503,000	$580,000	$754,000	$635,000	$611,000
	Total Lots After Subdivision		**8**	**7**	**8**	**7**	**11**	**7**
Subdivision Costs	Land Value per Lot		$93,625	$99,286	$93,750	$133,214	$89,091	$118,571
	Demolition Costs ($100/$m^2$)		$10,000	$13,000	$16,000	$9,000	$19,000	$10,800
	Civil Works		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
	Civil Works Contingency	10%	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
	Development Contribution		$26,400	$26,400	$22,900	$22,900	$23,800	$23,800
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost Per Lot		$180,025	$188,686	$182,650	$215,114	$181,891	$203,171
	Total Costs		**$1,440,200**	**$1,320,800**	**$1,461,200**	**$1,505,800**	**$2,000,800**	**$1,422,200**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($3,000/$m^2$)		$360,000	$360,000	$360,000	$360,000	$360,000	$360,000
	Rates and Insurance	2%	$15,000	$13,900	$15,000	$18,700	$19,600	$16,600
	Total Cost Per Dwelling		$381,000	$379,900	$381,000	$384,700	$385,600	$382,600
	Total Costs		**$3,048,000**	**$2,659,300**	**$3,048,000**	**$2,692,900**	**$4,241,600**	**$2,678,200**
Holding Costs	Interest (18 months)	6%	**$269,300**	**$238,800**	**$270,600**	**$251,900**	**$374,500**	**$246,000**
Total Costs			**$4,757,500**	**$4,218,900**	**$4,779,800**	**$4,450,600**	**$6,616,900**	**$4,346,400**
Realisation	Gross Revenue from Sales		$4,336,000	$3,521,000	$4,640,000	$5,278,000	$6,985,000	$4,277,000
	Less Sales Agent Costs	3%	$130,080	$105,630	$139,200	$158,340	$209,550	$128,310
	Net Revenue from Sales		-$551,580	-$803,530	-$279,000	$669,060	$158,550	-$197,710
	GST	15%	-$71,900	-$104,800	-$36,400	$87,300	$20,700	-$25,800
	Profit		**-$479,680**	**-$698,730**	**-$242,600**	**$581,760**	**$137,850**	**-$171,910**
	% Profit		**-10%**	**-17%**	**-5%**	**13%**	**2%**	**-4%**

Source: Urban Economics, Corelogic

Figure 24: Infill Terrace House Large Unit Development Feasibilities (Medium Density Residential Zone)

			Terrace					
Site Details	**Site ID**	**%**	**7**	**8**	**9**	**10**	**11**	**12**
	Suburb		Waitangirua	Cannons Creek	Takapuwahia	Kenepuru	Ranui	Ascot Park
	Zone		Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.	Med. Dens.
	Minimum Lot Size		300	300	300	300	300	300
	Existing Floor Area		100	130	160	90	190	108
	Land Area (m^2)		974	913	981	824	1,310	889
	Site Purchase Price		$749,000	$695,000	$750,000	$932,500	$980,000	$830,000
Effective Site Area	Site Land Area (m^2)		974	913	981	824	1,310	889
	Less Infrastructure and Amenities	15%	150	140	150	120	200	130
	Effective Area (m^2)		**824**	**773**	**831**	**704**	**1,110**	**759**
Development Scenario	New Lot Size (m^2)		100	100	100	100	100	100
	Dwelling Size (m^2)		160	160	160	160	160	160
	Lot Value		$315,000	$293,000	$338,000	$439,000	$369,000	$356,000
	Property Value (Land + Dwelling)		$630,000	$585,000	$675,000	$877,000	$738,000	$711,000
	Total Lots After Subdivision		**8**	**7**	**8**	**7**	**11**	**7**
Subdivision Costs	Land Value per Lot		$93,625	$99,286	$93,750	$133,214	$89,091	$118,571
	Demolition Costs ($100/$m^2$)		$10,000	$13,000	$16,000	$9,000	$19,000	$10,800
	Civil Works		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
	Civil Works Contingency	10%	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
	Development Contribution		$26,400	$26,400	$22,900	$22,900	$23,800	$23,800
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost Per Lot		$180,025	$188,686	$182,650	$215,114	$181,891	$203,171
	Total Costs		**$1,440,200**	**$1,320,800**	**$1,461,200**	**$1,505,800**	**$2,000,800**	**$1,422,200**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($2,750/$m^2$)		$440,000	$440,000	$440,000	$440,000	$440,000	$440,000
	Rates and Insurance	2%	$15,000	$13,900	$15,000	$18,700	$19,600	$16,600
	Total Cost Per Dwelling		$461,000	$459,900	$461,000	$464,700	$465,600	$462,600
	Total Costs		**$3,688,000**	**$3,219,300**	**$3,688,000**	**$3,252,900**	**$5,121,600**	**$3,238,200**
Holding Costs	Interest (18 months)	6%	**$307,700**	**$272,400**	**$309,000**	**$285,500**	**$427,300**	**$279,600**
Total Costs			**$5,435,900**	**$4,812,500**	**$5,458,200**	**$5,044,200**	**$7,549,700**	**$4,940,000**
Realisation	Gross Revenue from Sales		$5,040,000	$4,095,000	$5,400,000	$6,139,000	$8,118,000	$4,977,000
	Less Sales Agent Costs	3%	$151,200	$122,850	$162,000	$184,170	$243,540	$149,310
	Net Revenue from Sales		-$547,100	-$840,350	-$220,200	$910,630	$324,760	-$112,310
	GST	15%	-$71,400	-$109,600	-$28,700	$118,800	$42,400	-$14,600
	Profit		**-$475,700**	**-$730,750**	**-$191,500**	**$791,830**	**$282,360**	**-$97,710**
	% Profit		**-9%**	**-15%**	**-4%**	**16%**	**4%**	**-2%**

Source: Urban Economics, Corelogic

Figure 25: Greenfield Area Terrace House Small Unit Development Feasibilities

			Terrace					
Site Details	**Site ID**	**%**	**13**	**14**	**15**	**16**	**17**	**18**
	Suburb		Kenepuru	Kenepuru	Aotea	Aotea	Whitby	Whitby
	Zone		Med. Dens.	Med. Dens.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.
	Minimum Lot Size		300	300	400	400	400	400
	Existing Floor Area		0	0	0	0	0	0
	Land Area (m^2)		739	788	729	688	825	617
	Site Purchase Price		$395,000	$575,000	$580,000	$670,000	$287,000	$585,000
Effective Site Area	Site Land Area (m^2)		739	788	729	688	825	617
	Less Infrastructure and Amenities	15%	110	120	110	100	120	90
	Effective Area (m^2)		**629**	**668**	**619**	**588**	**705**	**527**
Development Scenario	New Lot Size (m^2)		100	100	150	150	150	150
	Dwelling Size (m^2)		80	80	80	80	80	80
	Lot Value		$316,000	$316,000	$337,000	$337,000	$378,000	$378,000
	Property Value (Land + Dwelling)		$631,000	$631,000	$673,000	$673,000	$756,000	$756,000
	Total Lots After Subdivision		**6**	**6**	**4**	**3**	**4**	**3**
Subdivision Costs	Land Value per Lot		$65,833	$95,833	$145,000	$223,333	$71,750	$195,000
	Demolition Costs ($100/$m^2$)		-	-	-	-	-	-
	Civil Works		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
	Civil Works Contingency	10%	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
	Development Contribution		$34,937	$34,937	$40,189	$40,189	$48,701	$48,701
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost Per Lot		$150,770	$180,770	$235,189	$313,522	$170,451	$293,701
	Total Costs		**$904,620**	**$1,084,620**	**$940,760**	**$940,570**	**$681,810**	**$881,100**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($3,250/$m^2$)		$260,000	$260,000	$260,000	$260,000	$260,000	$260,000
	Rates and Insurance	1%	$4,000	$5,800	$5,800	$6,700	$2,900	$5,900
	Total Cost Per Dwelling		$270,000	$271,800	$271,800	$272,700	$268,900	$271,900
	Total Costs		**$1,620,000**	**$1,630,800**	**$1,087,200**	**$818,100**	**$1,075,600**	**$815,700**
Holding Costs	Interest (18 months)	6%	**$151,500**	**$162,900**	**$121,700**	**$105,500**	**$105,400**	**$101,800**
Total Costs			**$2,676,120**	**$2,878,320**	**$2,149,660**	**$1,864,170**	**$1,862,810**	**$1,798,600**
Realisation	Gross Revenue from Sales		$3,786,000	$3,786,000	$2,692,000	$2,019,000	$3,024,000	$2,268,000
	Less Sales Agent Costs	3%	$113,580	$113,580	$80,760	$60,570	$90,720	$68,040
	Net Revenue from Sales		$996,300	$794,100	$461,580	$94,260	$1,070,470	$401,360
	GST	15%	$130,000	$103,600	$60,200	$12,300	$139,600	$52,400
	Profit		**$866,300**	**$690,500**	**$401,380**	**$81,960**	**$930,870**	**$348,960**
	% Profit		32%	24%	19%	4%	50%	19%

Source: Urban Economics, Corelogic

Figure 26: Greenfield Area Terrace House Medium Unit Development Feasibilities

			Terrace					
Site Details	**Site ID**	**%**	**13**	**14**	**15**	**16**	**17**	**18**
	Suburb		Kenepuru	Kenepuru	Aotea	Aotea	Whitby	Whitby
	Zone		Med. Dens.	Med. Dens.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.
	Minimum Lot Size		300	300	400	400	400	400
	Existing Floor Area		0	0	0	0	0	0
	Land Area (m^2)		739	788	729	688	825	617
	Site Purchase Price		$395,000	$575,000	$580,000	$670,000	$287,000	$585,000
Effective Site Area	Site Land Area (m^2)		739	788	729	688	825	617
	Less Infrastructure and Amenities	15%	110	120	110	100	120	90
	Effective Area (m^2)		**629**	**668**	**619**	**588**	**705**	**527**
Development Scenario	New Lot Size (m^2)		100	100	150	150	150	150
	Dwelling Size (m^2)		120	120	120	120	120	120
	Lot Value		$377,000	$377,000	$402,000	$402,000	$452,000	$452,000
	Property Value (Land + Dwelling)		$754,000	$754,000	$803,000	$803,000	$903,000	$903,000
	Total Lots After Subdivision		**6**	**6**	**4**	**3**	**4**	**3**
Subdivision Costs	Land Value per Lot		$65,833	$95,833	$145,000	$223,333	$71,750	$195,000
	Demolition Costs ($100/$m^2$)		-	-	-	-	-	-
	Civil Works		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
	Civil Works Contingency	10%	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
	Development Contribution		$34,937	$34,937	$40,189	$40,189	$48,701	$48,701
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost Per Lot		$150,770	$180,770	$235,189	$313,522	$170,451	$293,701
	Total Costs		**$904,620**	**$1,084,620**	**$940,760**	**$940,570**	**$681,810**	**$881,100**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($3,000/$m^2$)		$360,000	$360,000	$360,000	$360,000	$360,000	$360,000
	Rates and Insurance	1%	$4,000	$5,800	$5,800	$6,700	$2,900	$5,900
	Total Cost Per Dwelling		$370,000	$371,800	$371,800	$372,700	$368,900	$371,900
	Total Costs		**$2,220,000**	**$2,230,800**	**$1,487,200**	**$1,118,100**	**$1,475,600**	**$1,115,700**
Holding Costs	Interest (18 months)	6%	**$187,500**	**$198,900**	**$145,700**	**$123,500**	**$129,400**	**$119,800**
Total Costs			**$3,312,120**	**$3,514,320**	**$2,573,660**	**$2,182,170**	**$2,286,810**	**$2,116,600**
Realisation	Gross Revenue from Sales		$4,524,000	$4,524,000	$3,212,000	$2,409,000	$3,612,000	$2,709,000
	Less Sales Agent Costs	3%	$135,720	$135,720	$96,360	$72,270	$108,360	$81,270
	Net Revenue from Sales		$1,076,160	$873,960	$541,980	$154,560	$1,216,830	$511,130
	GST	15%	$140,400	$114,000	$70,700	$20,200	$158,700	$66,700
	Profit		**$935,760**	**$759,960**	**$471,280**	**$134,360**	**$1,058,130**	**$444,430**
	% Profit		28%	22%	18%	6%	46%	21%

Source: Urban Economics, Corelogic

Figure30: Greenfield Area Terrace House Large Unit Development Feasibilities

			Terrace					
Site Details	**Site ID**	**%**	**13**	**14**	**15**	**16**	**17**	**18**
	Suburb		Kenepuru	Kenepuru	Aotea	Aotea	Whitby	Whitby
	Zone		Med. Dens.	Med. Dens.	Gen. Res.	Gen. Res.	Gen. Res.	Gen. Res.
	Minimum Lot Size		300	300	400	400	400	400
	Existing Floor Area		0	0	0	0	0	0
	Land Area (m^2)		739	788	729	688	825	617
	Site Purchase Price		$395,000	$575,000	$580,000	$670,000	$287,000	$585,000
Effective Site Area	Site Land Area (m^2)		739	788	729	688	825	617
	Less Infrastructure and Amenities	15%	110	120	110	100	120	90
	Effective Area (m^2)		**629**	**668**	**619**	**588**	**705**	**527**
Development Scenario	New Lot Size (m^2)		100	100	150	150	150	150
	Dwelling Size (m^2)		160	160	160	160	160	160
	Lot Value		$439,000	$439,000	$467,000	$467,000	$525,000	$525,000
	Property Value (Land + Dwelling)		$877,000	$877,000	$934,000	$934,000	$1,050,000	$1,050,000
	Total Lots After Subdivision		**6**	**6**	**4**	**3**	**4**	**3**
Subdivision Costs	Land Value per Lot		$65,833	$95,833	$145,000	$223,333	$71,750	$195,000
	Demolition Costs ($100/$m^2$)		-	-	-	-	-	-
	Civil Works		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
	Civil Works Contingency	10%	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
	Development Contribution		$34,937	$34,937	$40,189	$40,189	$48,701	$48,701
	Power Connection		$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
	Telecom Connection		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Surveying/LINZ		$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
	Engineering/Geotech		$12,500	$12,500	$12,500	$12,500	$12,500	$12,500
	Legal		$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
	Total Cost Per Lot		$150,770	$180,770	$235,189	$313,522	$170,451	$293,701
	Total Costs		**$904,620**	**$1,084,620**	**$940,760**	**$940,570**	**$681,810**	**$881,100**
Build Costs	Architecture		$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
	Planning		$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
	Council Fees		$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
	Construction and Site Works ($2,750/$m^2$)		$440,000	$440,000	$440,000	$440,000	$440,000	$440,000
	Rates and Insurance	1%	$4,000	$5,800	$5,800	$6,700	$2,900	$5,900
	Total Cost Per Dwelling		$450,000	$451,800	$451,800	$452,700	$448,900	$451,900
	Total Costs		**$2,700,000**	**$2,710,800**	**$1,807,200**	**$1,358,100**	**$1,795,600**	**$1,355,700**
Holding Costs	Interest (18 months)	6%	**$216,300**	**$227,700**	**$164,900**	**$137,900**	**$148,600**	**$134,200**
Total Costs			**$3,820,920**	**$4,023,120**	**$2,912,860**	**$2,436,570**	**$2,626,010**	**$2,371,000**
Realisation	Gross Revenue from Sales		$5,262,000	$5,262,000	$3,736,000	$2,802,000	$4,200,000	$3,150,000
	Less Sales Agent Costs	3%	$157,860	$157,860	$112,080	$84,060	$126,000	$94,500
	Net Revenue from Sales		$1,283,220	$1,081,020	$711,060	$281,370	$1,447,990	$684,500
	GST	15%	$167,400	$141,000	$92,700	$36,700	$188,900	$89,300
	Profit		**$1,115,820**	**$940,020**	**$618,360**	**$244,670**	**$1,259,090**	**$595,200**
	% Profit		29%	23%	21%	10%	48%	25%

Source: Urban Economics, Corelogic

14. APPENDIX 2: COMMERCIAL FEASIBILITY ASSESSMENT METHODOLOGY AND SITE LIST

96. Sites were chosen at random from within the existing urban area. Different residential zones were chosen for each dwelling type based on the zone's expected development density.

97. Sales prices were derived from recent sales of new dwellings in Porirua at the suburb level for different types of dwellings. Using this information in conjunction with differences in ratable values at the suburb level enables the allocation of each suburb to a particular decile. The use of ratable values enables the estimation of achievable sales prices for suburbs that have no recent sales. Achievable sales prices differ by decile, dwelling size, and dwelling type.

98. Construction costs per sqm are derived from QV cost builder. Other costs used in the feasibility assessment are derived from industry knowledge.

Figure 27: Development Feasibility Site Details

Development Type	Site ID	Address	Suburb	Zone
Infill	1	31 Whanga Crescent	Titahi Bay	General Residential
	2	10 Tirowhanga Road	Paremata	General Residential
	3	115 Pope Street	Camborne	General Residential
	4	16 Aspiring Terrace	Aotea	General Residential
	5	39 Navigation Drive	Whitby	General Residential
	6	17 Tasman Close	Aotea	General Residential
	7	13 Kalingo Street	Waitangirua	Medium Density Residential
	8	84 Castor Crescent	Cannons Creek	Medium Density Residential
	9	57 Ngatitoa Street	Takapuwahia	Medium Density Residential
	10	10 Kenepuru Drive	Kenepuru	Medium Density Residential
	11	25A Awatea Street	Ranui	Medium Density Residential
	12	42 Beaumaris Crescent	Ascot Park	Medium Density Residential
Greenfield	13	7 Te Hoiere Street	Kenepuru	Medium Density Residential
	14	30 Te Hoiere Street	Kenepuru	Medium Density Residential
	15	68 Schooner Drive	Aotea	General Residential
	16	3 Trysail Place	Aotea	General Residential
	17	53 Hokioi Drive	Whitby	General Residential
	18	76 Hokioi Drive	Whitby	General Residential

Source: Urban Economics, Corelogic, Porirua City Council

Figure 282: Indicative New Stand Alone Sale Price by Suburb

		GFA (m^2)				
Suburb	% of Average Sale Price	50	100	150	200	250
Aotea	125%	$718,000	$922,000	$1,127,000	$1,331,000	$1,536,000
Pauatahanui	122%	$703,000	$904,000	$1,104,000	$1,304,000	$1,505,000
Camborne	121%	$823,000	$1,057,000	$1,292,000	$1,526,000	$1,761,000
Plimmerton	121%	$823,000	$1,057,000	$1,292,000	$1,526,000	$1,761,000
Whitby	119%	$807,000	$1,037,000	$1,267,000	$1,497,000	$1,727,000
Kenepuru	117%	$674,000	$866,000	$1,058,000	$1,250,000	$1,442,000
Papakowhai	111%	$754,000	$969,000	$1,183,000	$1,398,000	$1,613,000
Paremata	109%	$740,000	$951,000	$1,162,000	$1,372,000	$1,583,000
Pukerua Bay	96%	$650,000	$835,000	$1,020,000	$1,206,000	$1,391,000
Titahi Bay	87%	$588,000	$755,000	$923,000	$1,090,000	$1,258,000
Ranui	84%	$567,000	$729,000	$890,000	$1,052,000	$1,213,000
Ascot Park	81%	$546,000	$702,000	$858,000	$1,013,000	$1,169,000
Elsdon	80%	$539,000	$693,000	$847,000	$1,000,000	$1,154,000
Takapuwahia	77%	$519,000	$666,000	$814,000	$962,000	$1,110,000
Waitangirua	71%	$484,000	$622,000	$760,000	$898,000	$1,036,000
Cannons Creek	66%	$450,000	$578,000	$706,000	$834,000	$962,000

Source: Corelogic, Urban Economics

Figure 293: Indicative New Terrace House Sale Price by Suburb

		GFA (m^2)				
Suburb	% of Stand Alone Sale Price	50	100	150	200	250
Aotea	80%	$574,000	$738,000	$902,000	$1,065,000	$1,229,000
Pauatahanui	80%	$563,000	$723,000	$883,000	$1,043,000	$1,204,000
Camborne	80%	$658,000	$846,000	$1,033,000	$1,221,000	$1,408,000
Plimmerton	80%	$658,000	$846,000	$1,033,000	$1,221,000	$1,408,000
Whitby	80%	$539,000	$693,000	$846,000	$1,000,000	$1,153,000
Kenepuru	80%	$646,000	$830,000	$1,013,000	$1,197,000	$1,381,000
Papakowhai	80%	$603,000	$775,000	$947,000	$1,118,000	$1,290,000
Paremata	80%	$592,000	$761,000	$929,000	$1,098,000	$1,266,000
Pukerua Bay	80%	$520,000	$668,000	$816,000	$964,000	$1,113,000
Titahi Bay	80%	$470,000	$604,000	$738,000	$872,000	$1,006,000
Ranui	80%	$454,000	$583,000	$712,000	$841,000	$971,000
Ascot Park	80%	$437,000	$562,000	$686,000	$811,000	$935,000
Elsdon	80%	$432,000	$554,000	$677,000	$800,000	$923,000
Takapuwahia	80%	$415,000	$533,000	$651,000	$770,000	$888,000
Waitangirua	80%	$387,000	$498,000	$608,000	$718,000	$828,000
Cannons Creek	80%	$360,000	$462,000	$564,000	$667,000	$769,000

Source: Corelogic, Urban Economics